ORDER NO. HAD8506125A2

Service Manual

Receiver

SA-K2

FM/AM Stereo Receiver

DOLBY SYSTEM

Color

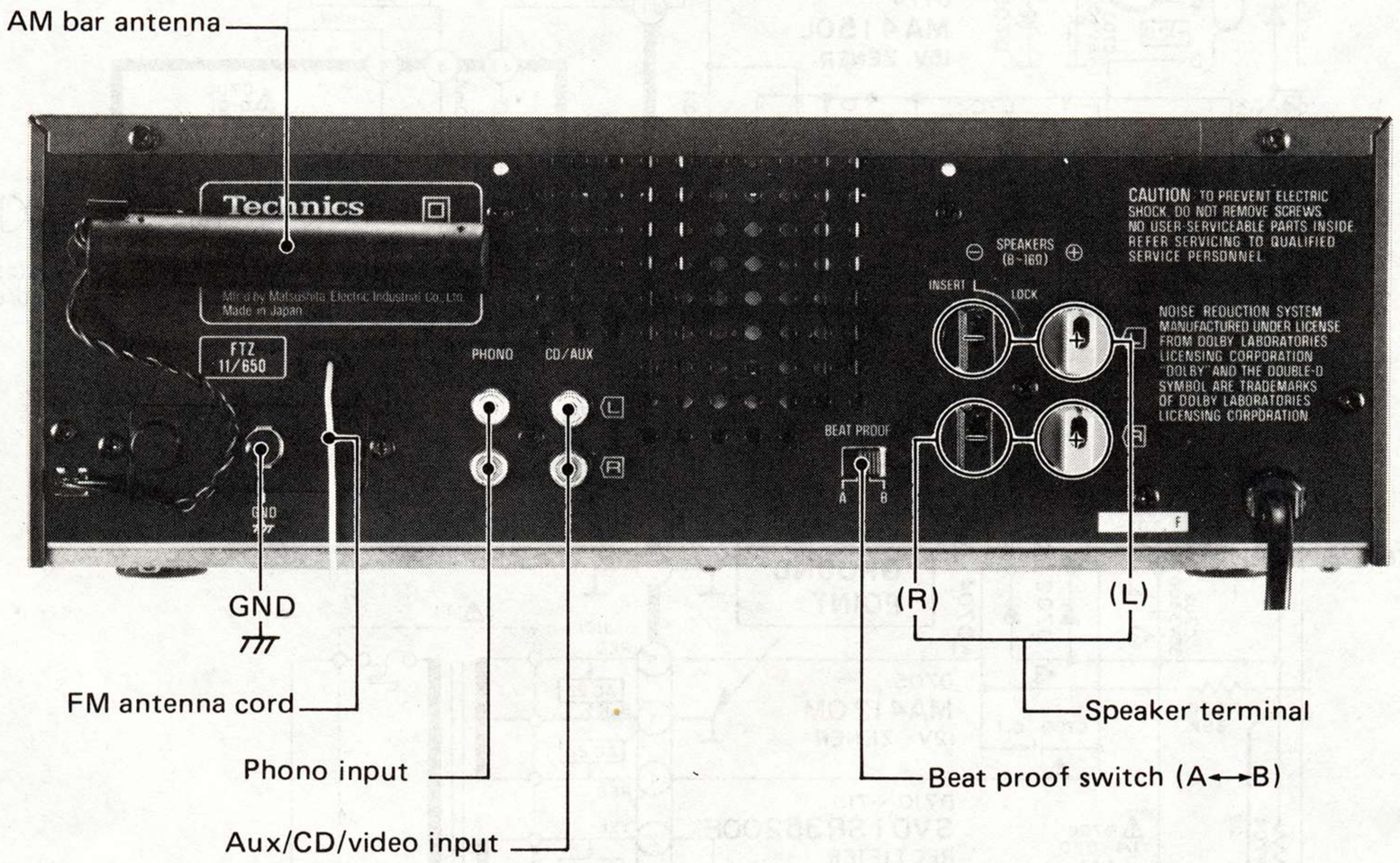
(S)...Silver Type
(K)...Black Type
(R)...Red Type

Color	Areas
(S)(K)(R)	[EG]...F.R. Germany

Please use this manual together with the service manual for Model No. SA–K2, Order No. HAD84122346C2.

■ CHANGE IN LOCATION OF CONTROL

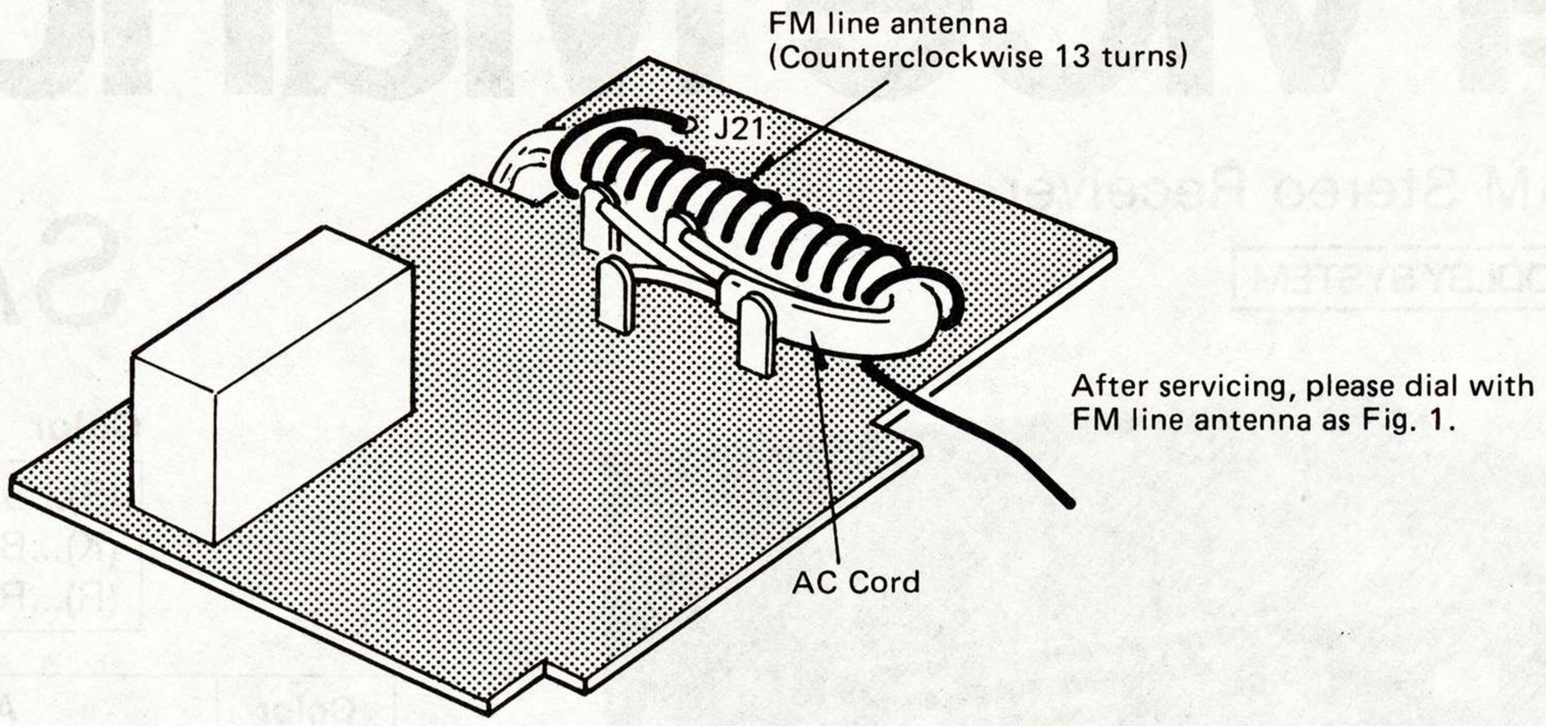
- **Rear panel**



Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

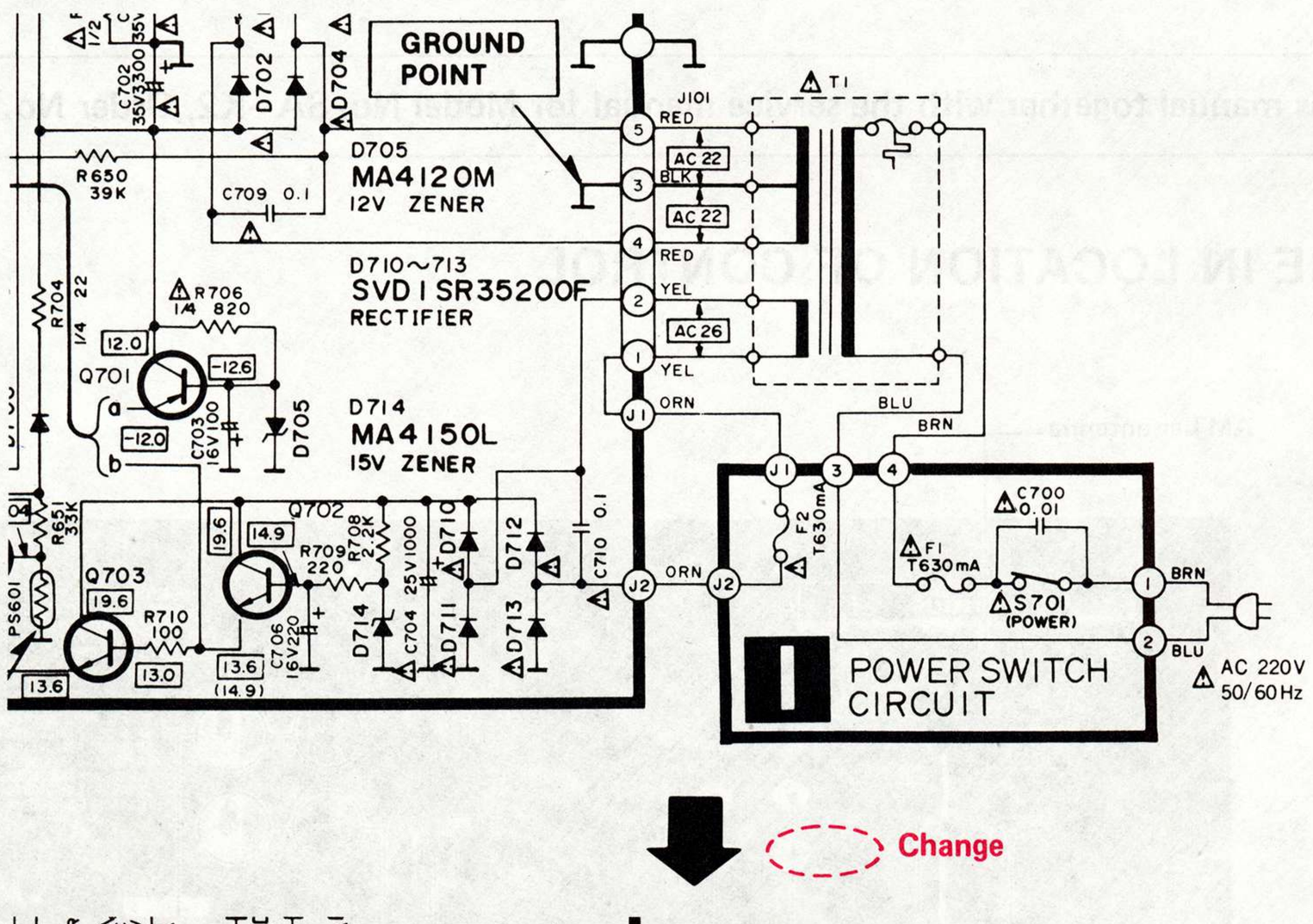
- **Disposition of FM line antenna**



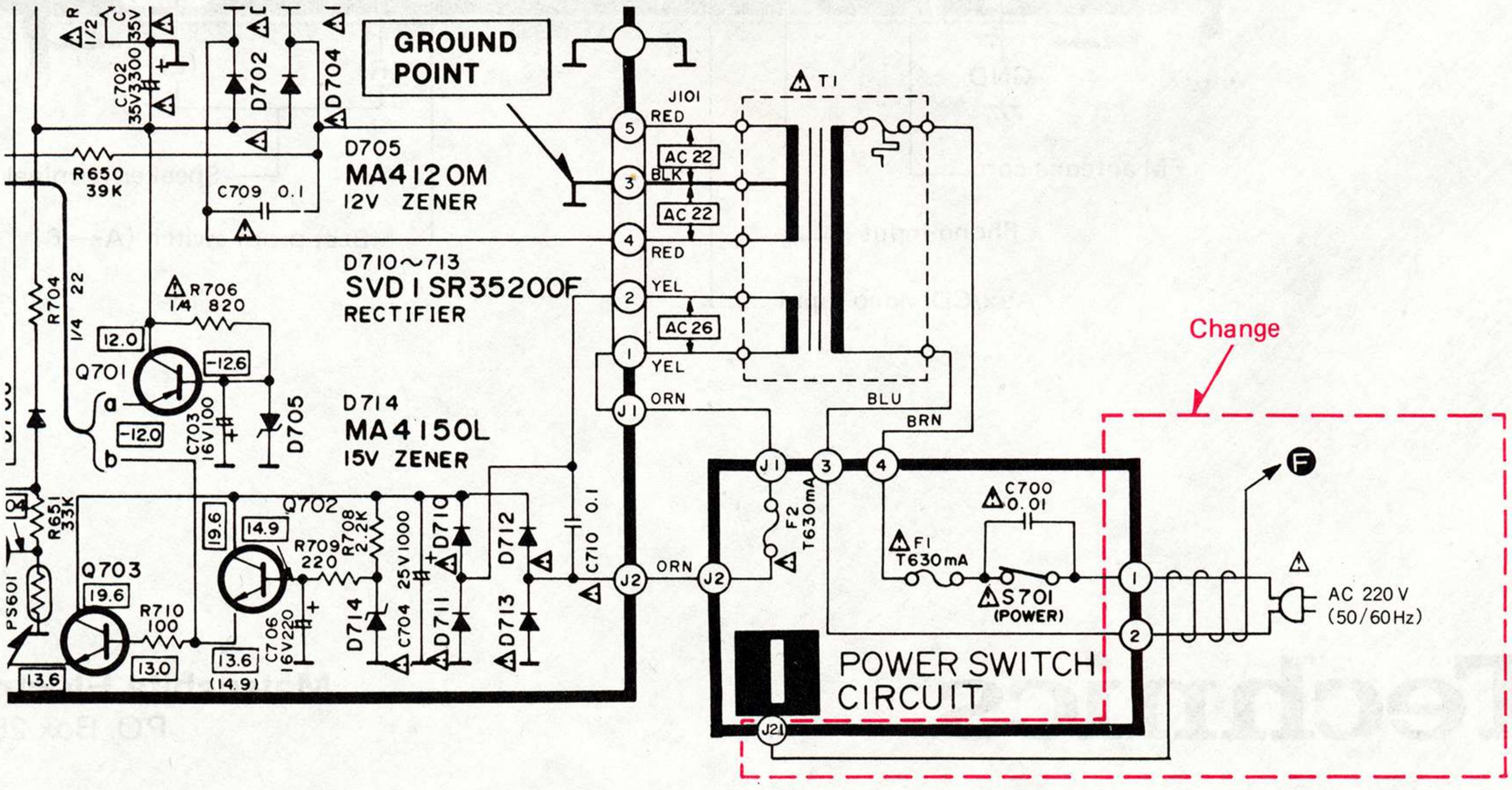
[Fig. 1]

■ CHANGE IN SCHEMATIC DIAGRAM

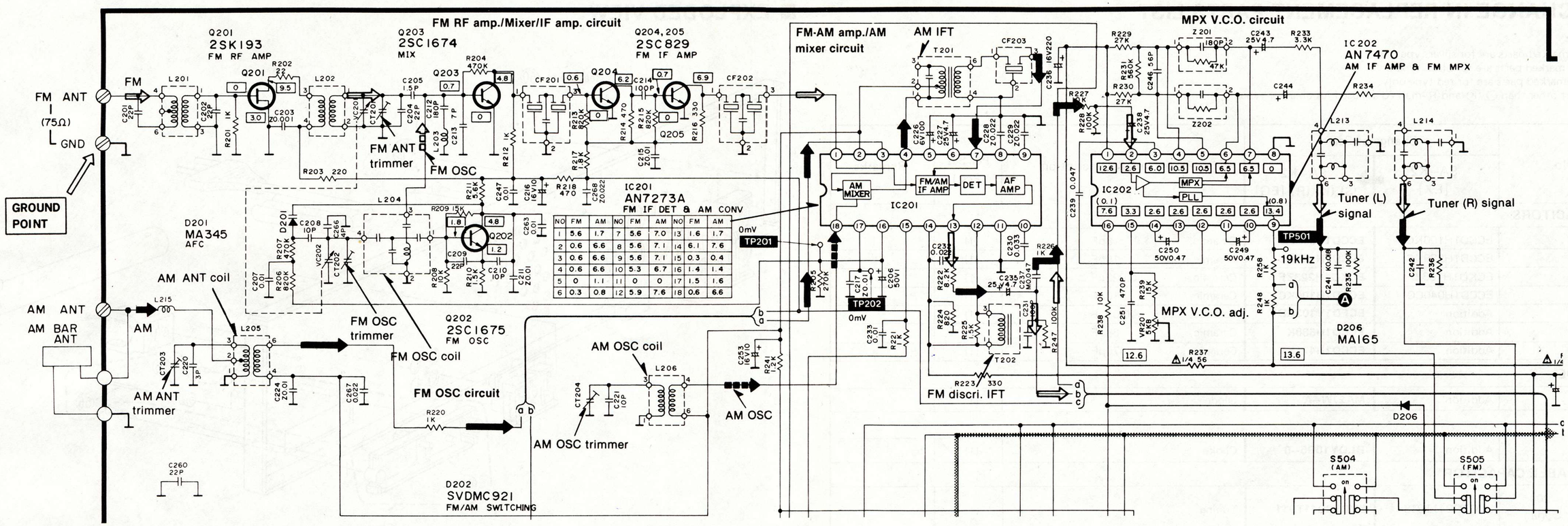
- **[EX] area**



- **[EG] area**

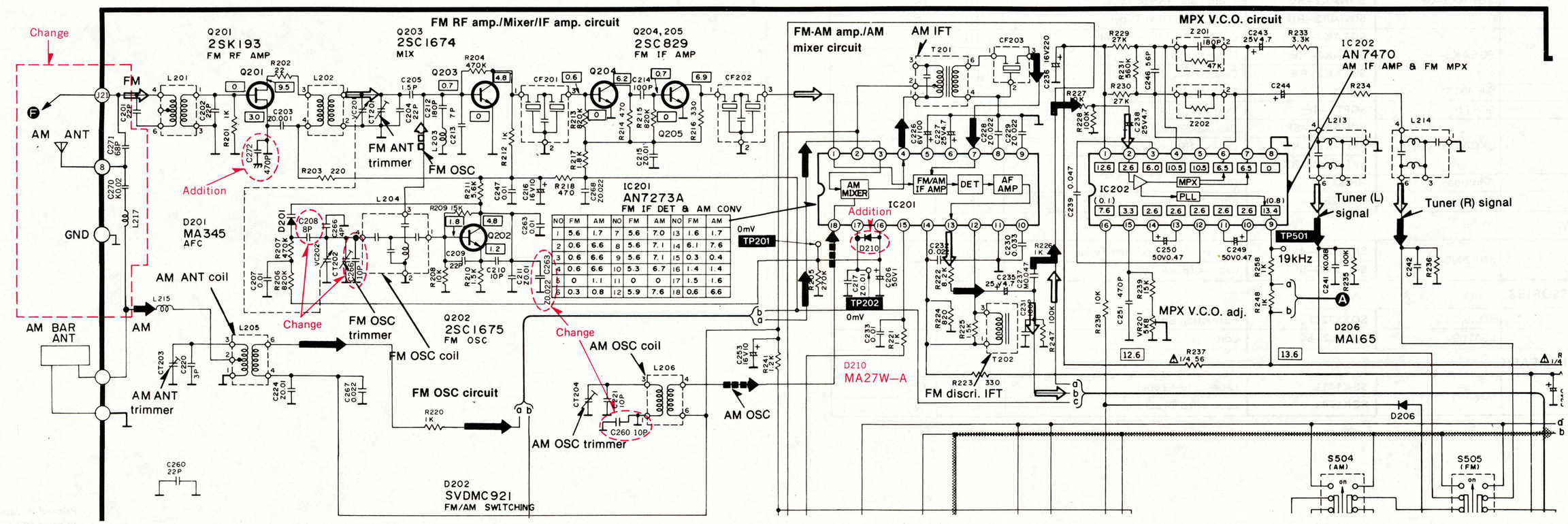


- [EX] area



- [EG] area

Change



Change

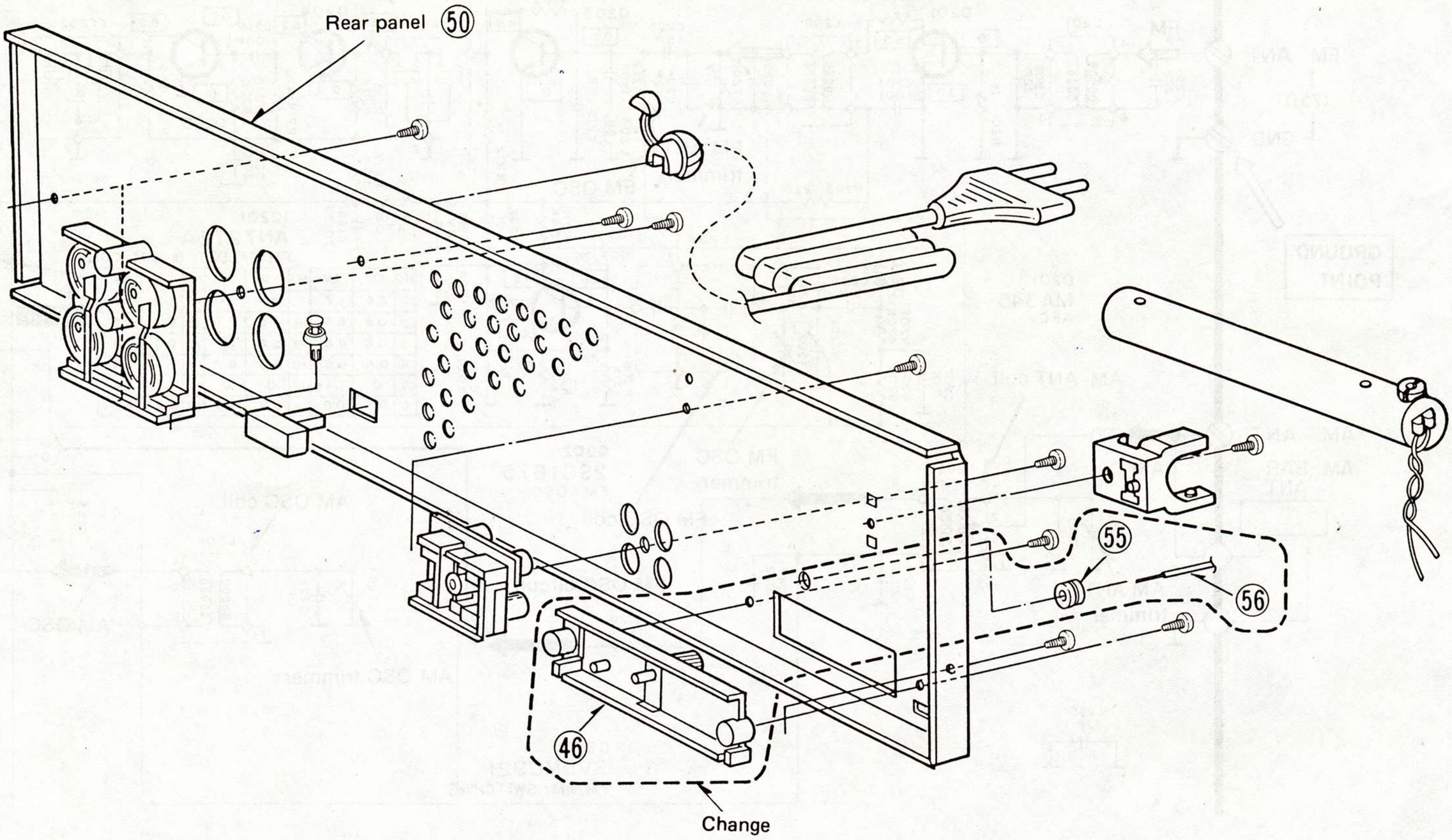
■ CHANGE IN REPLACEMENT PARTS LIST

Notes:

- ○-marked parts are for silver type only.
- Ⓚ-marked parts are for black type only.
- Ⓡ-marked parts are for red type only.
- Part other than ○, Ⓚ and Ⓡ-marked are used for all color type.

Ref. No.	Change of Part: SA–K2 [EX]	Change of Part: SA–K2 (S) (K) (R) [EG]	Part Name & Description	Per Set (Pcs.)	Remarks
CAPACITORS					
C208	ECCD1H100KC	**ECCD1H080CC**	Ceramic, 8pF	(1)	
C260	ECCD1H220KC	**ECCD1H100KC**	Ceramic, 10pF	(1)	
C263	ECKD1H103ZF	**ECKD1H223ZF**	Cermaic, 0.022μF	(1)	
C266	ECCD1H040CC	**ECCD1H100KC**	Ceramic, 10pF	(1)	
C270	Addition	**ECFD1V103KDY**	Ceramic, 0.01μF	(1)	
C271	Addition	**ECCD1H680K**	Ceramic, 68pF	(1)	
C272	Addition	**ECCD1H471KB**	Ceramic, 470pF	(1)	
DIODE					
D210	Addition	**MA27W–A**	Diode	(1)	
COIL					
L217	Addition	**RLQY10G5–0**	Choke	(1)	
VARIABLE CAPACITOR					
VC201 ～204 (CT201 ～204)	SVCTCB41T318	**SVCTCB41T911**	Tuning	(1)	
CABINET and CHASSIS PARTS					
1	SGWAK2–SE	**SGWAK2–SG**	Front Panel (Silver Type)	(1)	○
		SGWAK2–KG	Front panel (Black Type)	(1)	Ⓚ
		SGWAK2–RG	Front Panel (Red Type)	(1)	Ⓡ
4	SGEAK2–SE	**SGEAK2–SE**	Cassette Lid (Silver Type)	(1)	○
		SGEAK2–KE	Cassette Lid (Black Type)	(1)	Ⓚ
		SGEAK2–RE	Cassette Lid (Red Type)	(1)	Ⓡ
46	SJF4316	**SJFT2**	Terminal Board, Antenna	(1)	
50	SGPT1C	**SGPT1–1F**	Rear Panel	(1)	Ⓚ
54	SKCAK2L–SK	**SKCAK2L–SK**	Cabinet (Silver Type)	(1)	○
		SKCAK2L–KK	Cabinet (Black Type)	(1)	
		SKCAK2L–RK	Cabinet (Red Type)	(1)	Ⓡ
55	Addition	**RHG3–1**	Rubber	(1)	
56	Addition	**WHK2EG**	Cord, FM Antenna	(1)	
SCREW					
N17	SNE2095–4	**SNE2095–4**	Cabinet (Silver and Red Type)	(4)	○, Ⓡ
		SNE2095–5	Cabinet (Black Type)	(4)	Ⓚ
ACCESSORIES					
A1	SQX53215	**SQX53217**	Instruction Book	(1)	
A2	SSA269	**SJPAK2–SG**	Cord	(1)	
PACKING PART					
P9	SGK1411	**SGK1411**	Label (Silver Type)	(2)	○
		SGK1743	Label (Red Type)	(2)	Ⓡ

■ EXPLODED VIEW



Printed in Japan
850601100 Ⓗ TN

ORDER NO. HAD84122346C2

Service Manual

FM/AM Stereo Cassette Receiver

DOLBY SYSTEM

Receiver

SA-K2

Color

(S) ...Silver Type
(K) ...Black Type
(R) ...Red Type
(W)...White Type

Color	Area
(S) (K) (R) (W)	[EX]...Scandinavia and Switzerland.

SPECIFICATIONS (DIN 45 500)

■ AMPLIFIER SECTION

20 Hz~20 kHz continuous power output		
both channels driven		2 × 16W (8Ω)
40 Hz~16 kHz continuous power output		
both channels driven		2 × 18W (8Ω)
1 kHz continuous power output		
both channels driven		2 × 20W (8Ω)
Total harmonic distortion		
rated power at 20 Hz~20 kHz		0.9% (8Ω)
rated power at 40 Hz~16 kHz		0.8% (8Ω)
rated power at 1 kHz		0.8% (8Ω)
half power at 20 Hz~20 kHz		0.14% (8Ω)
half power at 1 kHz		0.1% (8Ω)
−26 dB power at 1 kHz		0.2% (8Ω)
50 mW power at 1 kHz		0.2% (8Ω)
Intermodulation distortion		
rated power at 250 Hz: 8 kHz=4:1, 8Ω		0.8%
rated power at 60 Hz: 7 kHz=4:1, SMPTE, 8Ω		0.4%
Power bandwidth		
both channels driven, −3 dB		10 Hz~45 kHz (8Ω)
Damping factor		30 (8Ω)
Input sensitivity and impedance	**PHONO**	2.5 mV/47kΩ
	CD/AUX	150 mV/33kΩ
	MIC	1.5 mV/10kΩ
PHONO maximum input voltage (1 kHz, RMS)		120 mV
S/N rated power (8Ω)	**PHONO**	70 dB (IHF, A: 72 dB 8Ω)
	CD/AUX	87 dB (IHF, A: 84 dB 8Ω)
	MIC	70 dB (IHF, A: 70 dB 8Ω)
−26 dB power (8Ω)	**PHONO**	65 dB
	CD/AUX	68 dB
	MIC	65 dB
50 mW power (8Ω)	**PHONO**	65 dB
	CD/AUX	68 dB
	MIC	65 dB
Frequency response	**PHONO**	RIAA standard curve ±1 dB (30 Hz~15 kHz)
	CD/AUX	10 Hz~45 kHz (−3 dB)
	MIC	20 Hz~10 kHz (−3 dB)
Tone controls	**Low Boost**	50 Hz, +10 dB
	High Boost	20 kHz, +7 dB
Subsonic filter		30 Hz, −6 dB/oct.
Channel balance, CD/AUX 250 Hz~6,300 Hz		±3 dB
Channel separation, CD/AUX 1 kHz		45 dB
Headphones output level and impedance		410 mV/220Ω
Load impedance		8Ω~16Ω

■ FM TUNER SECTION

Frequency range		88~108 MHz
Sensitivity		1.5 μV (IHF, usable)
S/N 30 dB		1.0 μV (75Ω)
S/N 26 dB		0.9 μV (75Ω)
S/N 20 dB		0.8 μV (75Ω)
IHF 46 dB stereo quieting sensitivity		22 μV/75Ω
Total harmonic distortion at 1 kHz	**MONO**	0.2%
	STEREO	0.4%
S/N MONO		62 dB (75 dB, IHF)
STEREO		60 dB (70 dB, IHF)
Frequency response		20 Hz~15 kHz, +0.5 dB~ −1.5 dB
Alternate channel selectivity		60 dB
Capture ratio		1.0 dB
Image rejection at 98 MHz		40 dB
IF rejection at 98 MHz		65 dB
Spurious response rejection at 98 MHz		70 dB
AM suppression		50 dB
Stereo separation	**1 kHz**	40 dB
	10 kHz	30 dB
Carrier leak	**19 kHz**	−52 dB (−53 dB, IHF)
	38 kHz	−60 dB (−62 dB, IHF)
Channel balance (250 Hz~6,300 Hz)		±1.5 dB
Limiting point		1.0 μV
Bandwidth	**IF amplifier**	180 kHz
	FM demodulator	1000 kHz
Antenna terminals		75Ω (unbalanced)

■ AM TUNER SECTION

Frequency range	525~1605 kHz
Sensitivity (S/N 20 dB)	20 μV, 300 μV/m
Selectivity	27 dB
Image rejection at 1,000 kHz	40 dB
IF rejection at 1,000 kHz	60 dB

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

■ CASSETTE DECK SECTION

Deck system		Stereo cassette deck
Track system		4-track, 2-channel
Heads	**REC/PLAY**	Solid Permaloy head
	Erasing	Double-gap ferrite head
Motors		Electronically controlled DC motor
Recording system		AC bias
Bias frequency		87 kHz
Erasing system		AC erase
Tape speed		4.8 cm/sec.
Frequency response	**METAL**	20 Hz~18 kHz, 35 Hz~18 kHz (DIN)
	CrO_2	20 Hz~17 kHz, 35 Hz~17 kHz (DIN)
	NORMAL	20 Hz~16 kHz, 35 Hz~16 kHz (DIN)
S/N		(signal level = max recording level, CrO_2 type tape)
DOLBY NR in		65 dB (above 5 kHz)
DOLBY NR out		56 dB
Wow and flutter		0.05% (WRMS), ±0.14% (DIN)
Fast Forward and Rewind Time		Approx. 110 seconds with C-60 cassette tape

■ GENERAL

Power consumption	110W
Power supply	AC 50 Hz/60 Hz, 220V
Dimensions (W×H×D)	315 × 111 × 343 mm (12-13/32" × 4-3/8" × 13-1/2")
Weight	5.3 kg (11.7 lb.)

Note:
Specifications are subject to change without notice for further improvement.

- Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trade marks of Dolby Laboratories Licensing Corporation.

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■ PROTECTION CIRCUITRY

The protection circuitry may have operated if either of the following conditions is noticed:

- No sound is heard when the power is turned on.
- Sound stops during a performance.

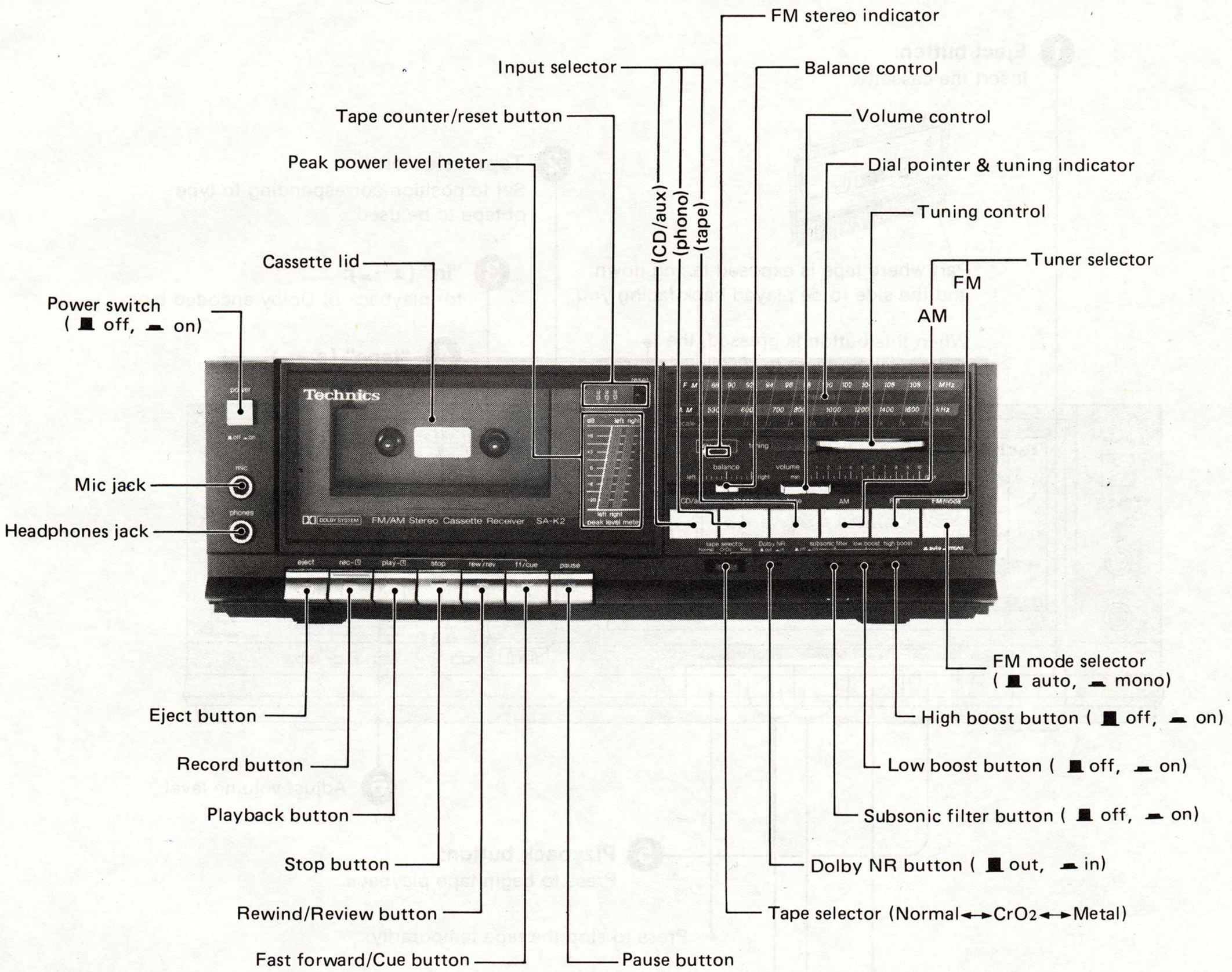
The function of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are "shorted", or if speaker systems with an impedance less than the indicated rated impedance of this unit are used.

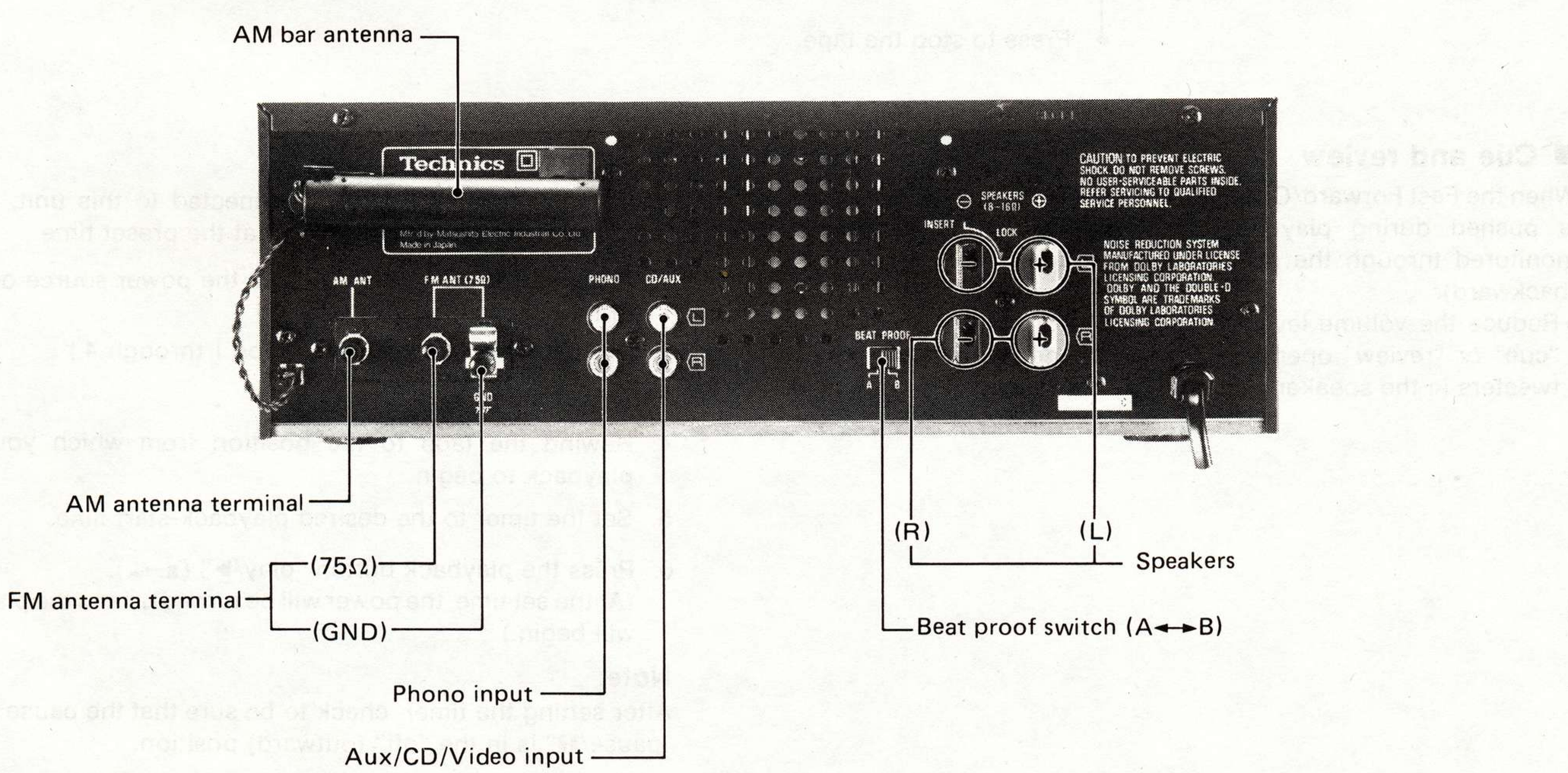
If this occurs, follow the procedure outlines below:

1. Turn off the power.
2. Determine the cause of the problem and correct it.
3. Turn on the power once again after one minute.

Note:
When the protection circuitry functions, the unit will not operate unless the power is first turned off and then on again.

■ LOCATION OF CONTROLS





- Phono input capacitance is about 150pF.

■ OPERATION

■ To listen to tapes

1 Eject button:
Insert the cassette.

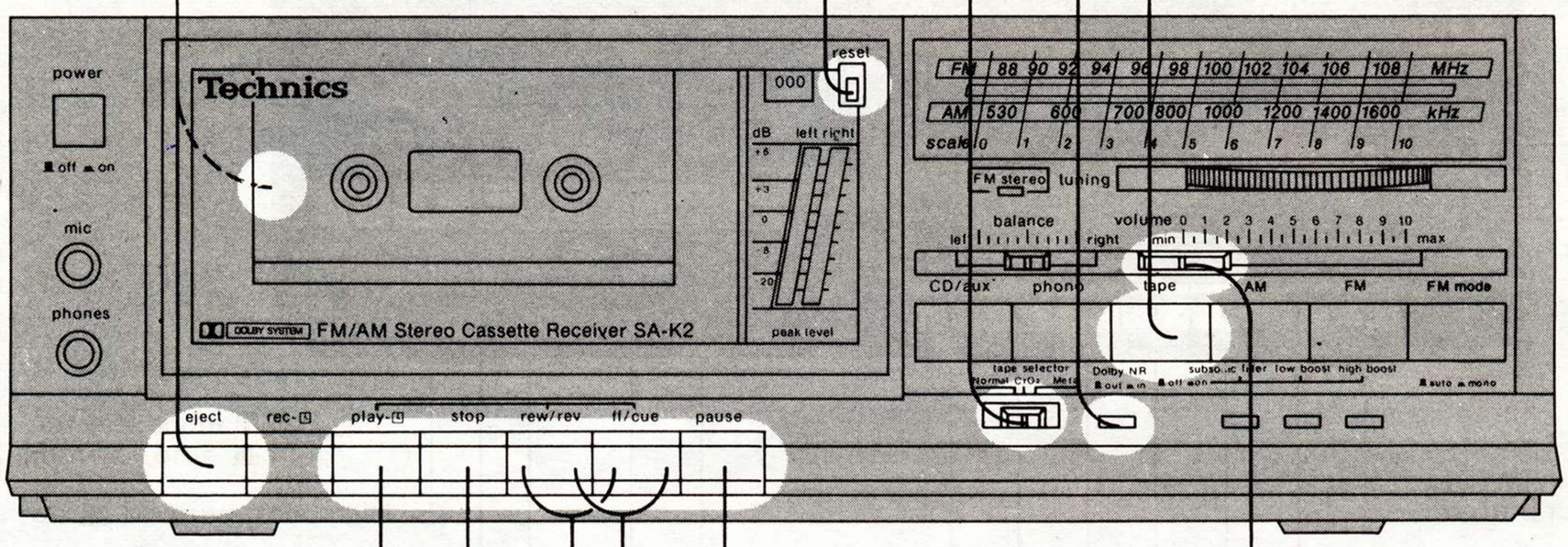
Part where tape is exposed facing down and the side to be played back facing you.

When this button is pressed, the redout will be reset to "000".

2 Tape selector:
Set to position corresponding to type of tape to be used.

3 "in" (▮→▬):
for playback of Dolby encoded tape.

4 "tape" (▮→▬)


power
off on
mic
phones
Technics
reset
000
dB left right
+6
+3
0
-8
-20
peak level
DOLBY SYSTEM FM/AM Stereo Cassette Receiver SA-K2
FM 88 90 92 94 96 98 100 102 104 106 108 MHz
AM 530 600 700 800 1000 1200 1400 1600 kHz
scale 0 1 2 3 4 5 6 7 8 9 10
FM stereo tuning
balance left right
volume 0 1 2 3 4 5 6 7 8 9 10 min max
CD/aux phono tape AM FM FM mode
tape selector Normal CrO2 Metal
Dolby NR off on
subsonic filter low boost high boost
auto mono
eject rec play stop rew/rev ff/cue pause

6 Adjust volume level.

5 Playback button:
Press to begin tape playback.

Press to stop the tape temporarily.

Review or cue: by lightly pressing continuously

Rewind or fast-forward: by pressing inward

Press to stop the tape.

■ Cue and review

When the Fast Forward/Cue Button (or Rewind/Review Button) is pushed during playback, the playback sound can be monitored through the speaker as the tape is sent forward (backward).

- Reduce the volume level of this unit before performing the "cue" or "review" operation. If the volume is too high, the tweeters in the speaker systems may be damaged.

■ Timer Playback

If an audio timer (option) is connected to this unit, a tape playback will automatically begin at the preset time.

1. Connect the plug of this unit to the power source outlet of the timer.
2. Playback the tape. (Follow steps 1 through 4.)
3. Adjust the volume level.
4. Rewind the tape to the position from which you want playback to begin.
5. Set the timer to the desired playback-start time.
6. Press the playback button "play/▶" (▮→▬).
   (At the set time, the power will be turned on and the playback will begin.)

Note:
After setting the timer, check to be sure that the pause button "pause/▮▮" is in the "off" (outward) position.

■ DOLBY ENCODED RECORDING/DECODED PLAYBACK

This unit includes a Dolby noise-reduction system which reduces tape noise to a remarkable degree.
Briefly, the system works as follows: At low sound levels (where tape noise is most noticeable), the level of the higher frequency portion of the sound is boosted during recording. The lower the sound level, the greater the high frequency boost.
During playback, the low level high frequency sounds are attenuated by the same amount by which they were boosted during recording to restore them to the original level.
Because the tape noise is also attenuated during playback, a significant reduction of tape noise can be achieved, thereby improving the signal-to-noise ratio.
When making a Dolby encoded recording, it is especially important to use only high quality tapes and to match the tape selector to the tape being used (normal, CrO_2, or metal tape).

Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trade marks of Dolby Laboratories Licensing Corporation.

Note:
When a "Dolby " encoded recording is made, we recommend that you note this fact on the cassette for later playback reference.

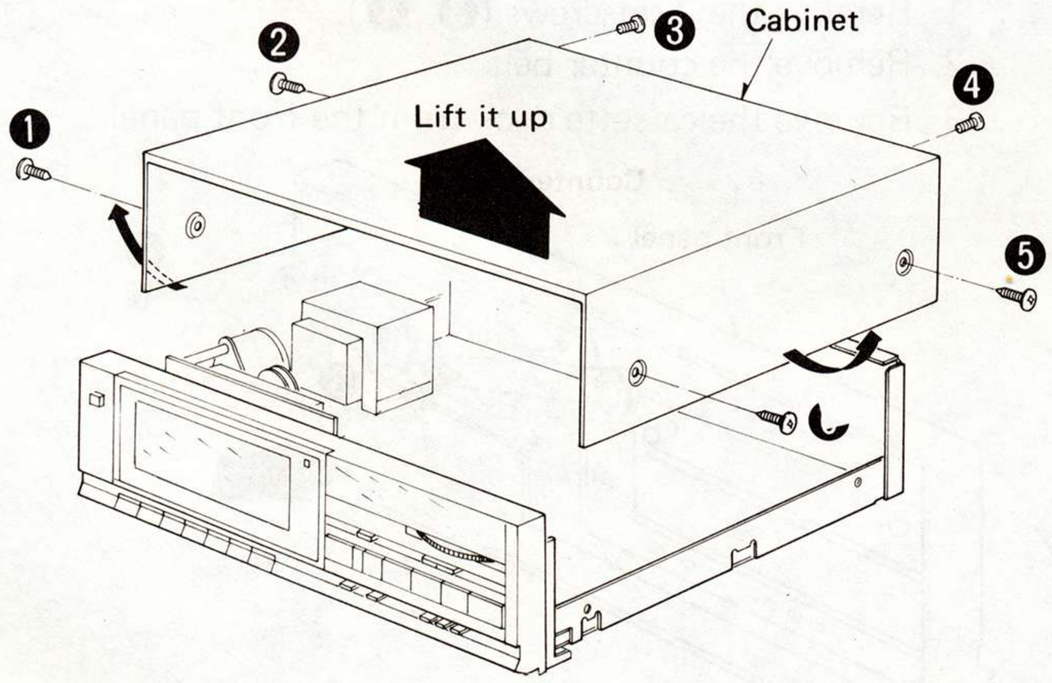
■ BEFORE REPAIR AND ADJUSTMENT

1. Turn off the power supply and short-circuit of power supply capacitors (C701 and C702, 3300μF) at resistance (about 10Ω, 5W) in order to discharge the charged voltage. Do not short between C701 and C702 by screwdriver. It may damage the component.
2. Before turning on the power supply after completion of repair, slowly apply the primary voltage by using a power supply voltage controller to make sure that the consumed current is free of abnormality. The consumed current at 50 Hz in no signal mode is shown below with respect to supply voltage 220V.

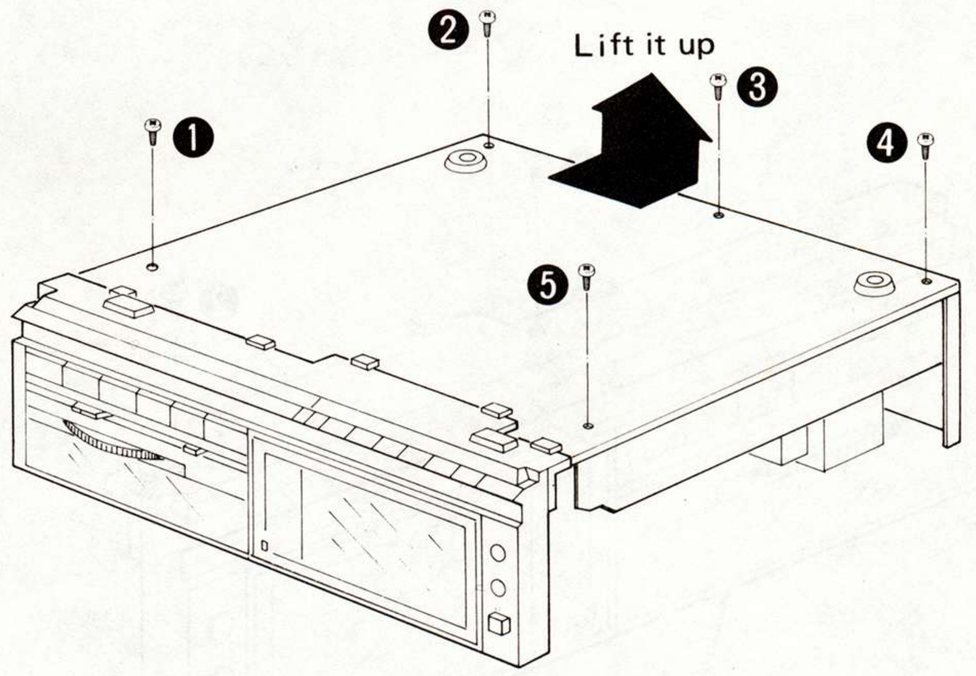
Power supply voltage		AC 220V
Consumed current	50 Hz	57 ~ 97 mA

■ DISASSEMBLY INSTRUCTION

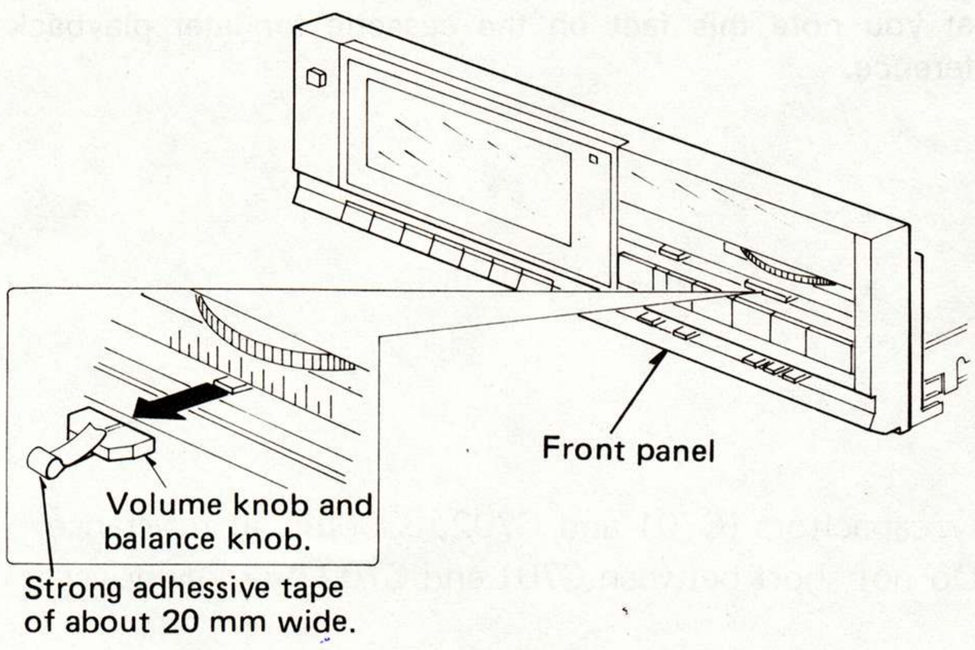
Ref. No. 1	How to remove the cabinet
Procedure 1	1. Remove the 6 setscrews. (❶ ~ ❻) 2. Remove the cabinet in the direction of the arrows.



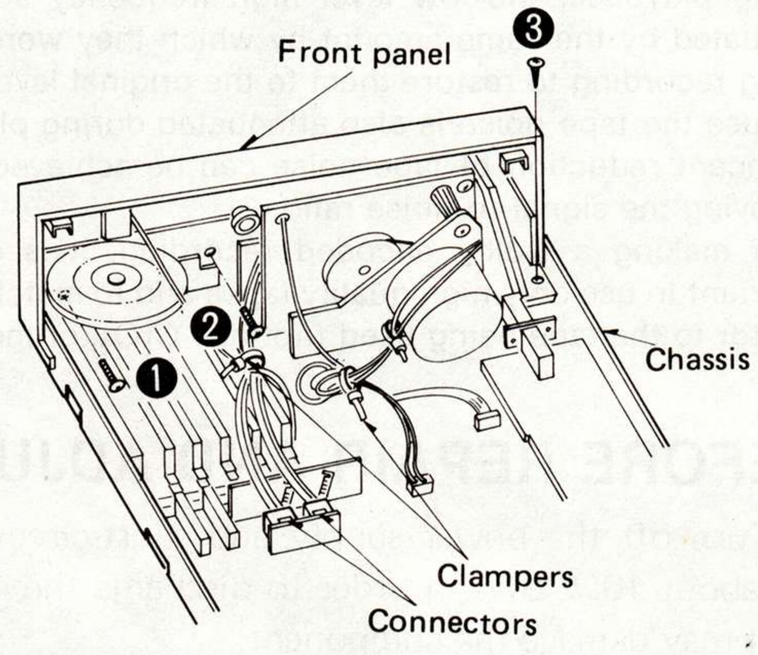
Ref. No. 2	How to remove the bottom board
Procedure · 1 ➡ 2	1. Remove the 5 setscrews. (❶ ~ ❺) 2. Remove the bottom board in the direction of the arrow.



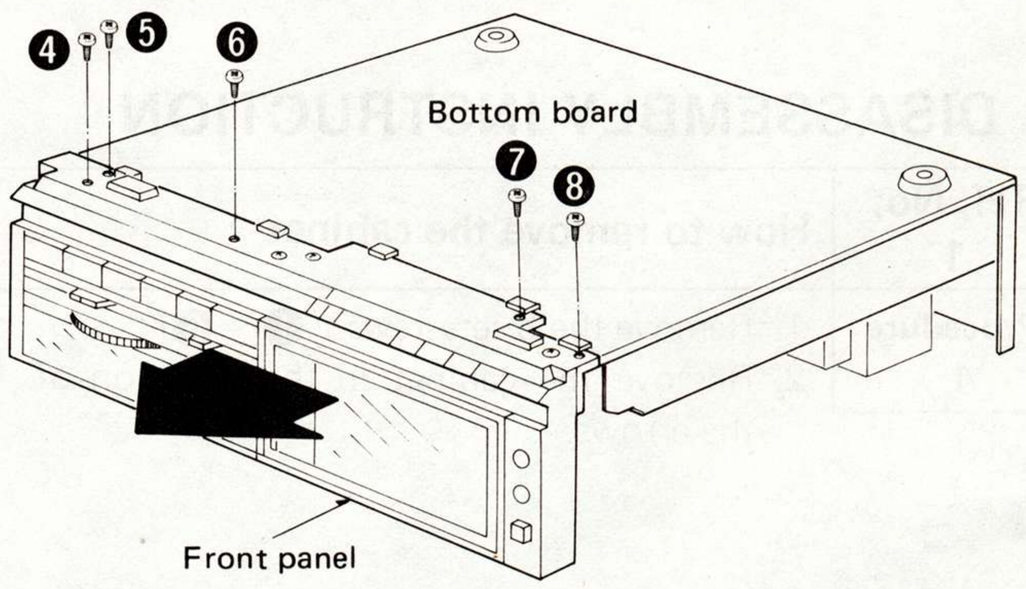
Ref. No. 3	How to remove the front panel
Procedure 1➡3	• Remove the volume knob and balance knob.



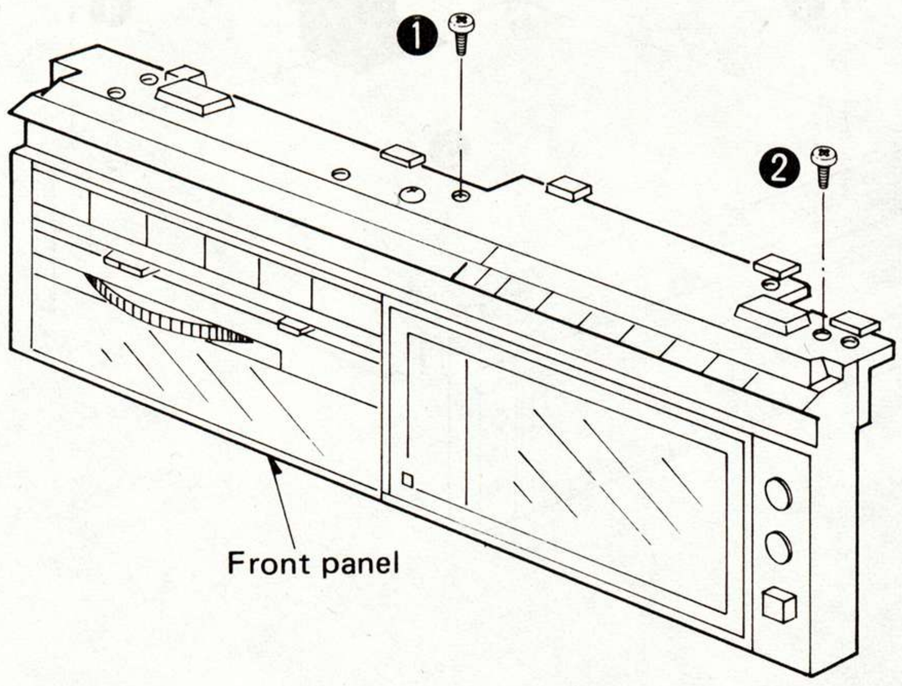
1. Cut off the 2 lead clampers.
2. Pull out the 2 connectors.
3. Remove the 3 setscrews. (❶~❸)



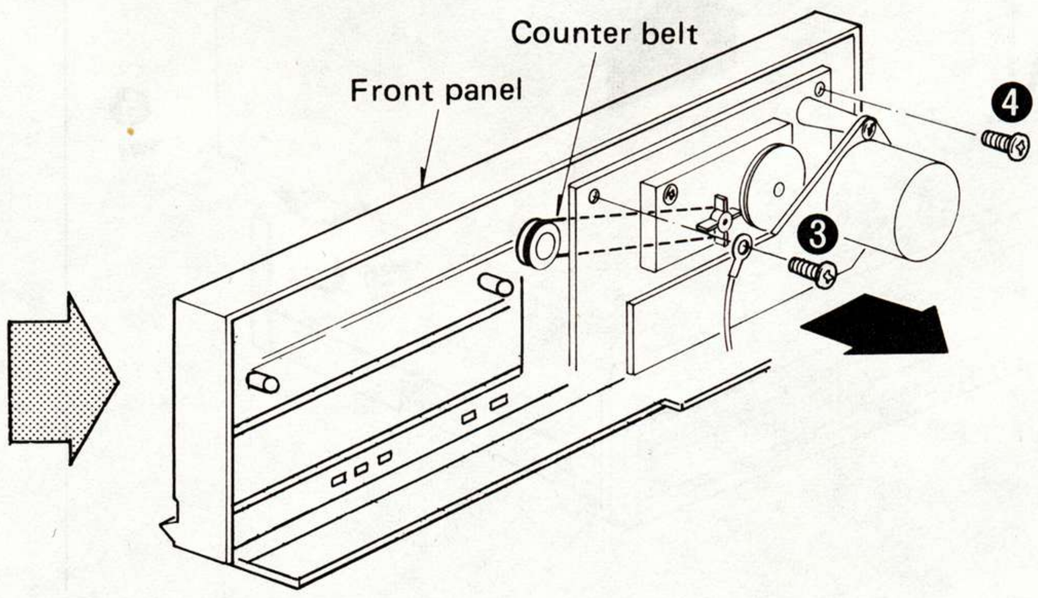
• Remove the 5 setscrews. (❹~❽)



Ref. No. 4	How to remove the cassette deck
Procedure 1➡3➡4	• Remove the 2 setscrews. (❶, ❷)

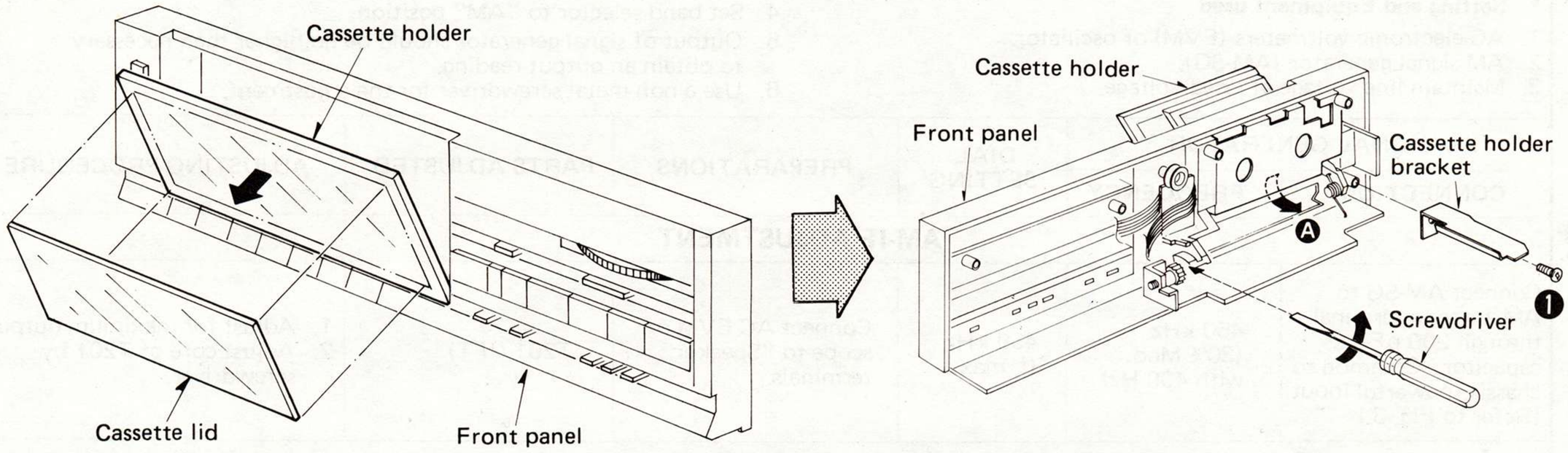


1. Remove the 2 setscrews (❸, ❹)
2. Remove the counter belt.
3. Remove the cassette deck from the front panel.



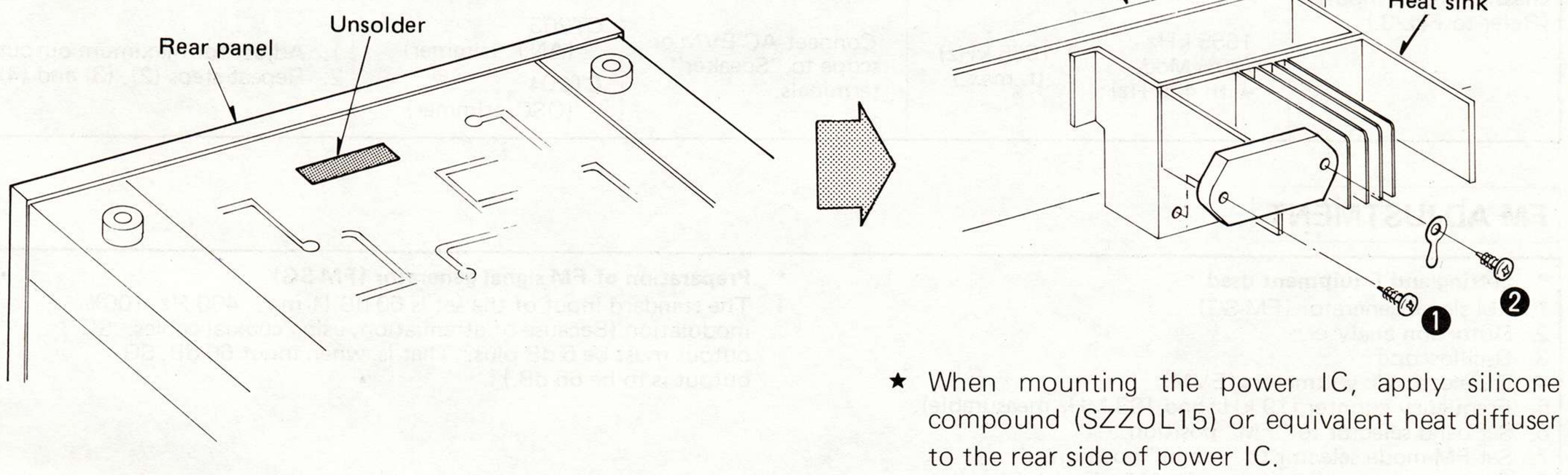
Ref. No. 5	How to remove the cassette holder
Procedure 1➡3➡4➡5	1. Remove the cassette lid.

1. Remove the 1 setscrew. (❶)
2. Remove the cassette holder by inserting a screwdriver between the cassette chassis and in the direction of arrow Ⓐ.



Ref. No. 6	How to remove the power IC
Procedure 1➡2➡3➡6	• Unsolder the power IC.

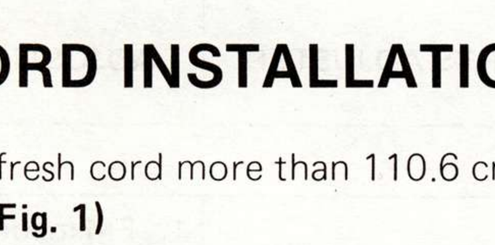
• Remove the 2 setscrews. (❶, ❷)



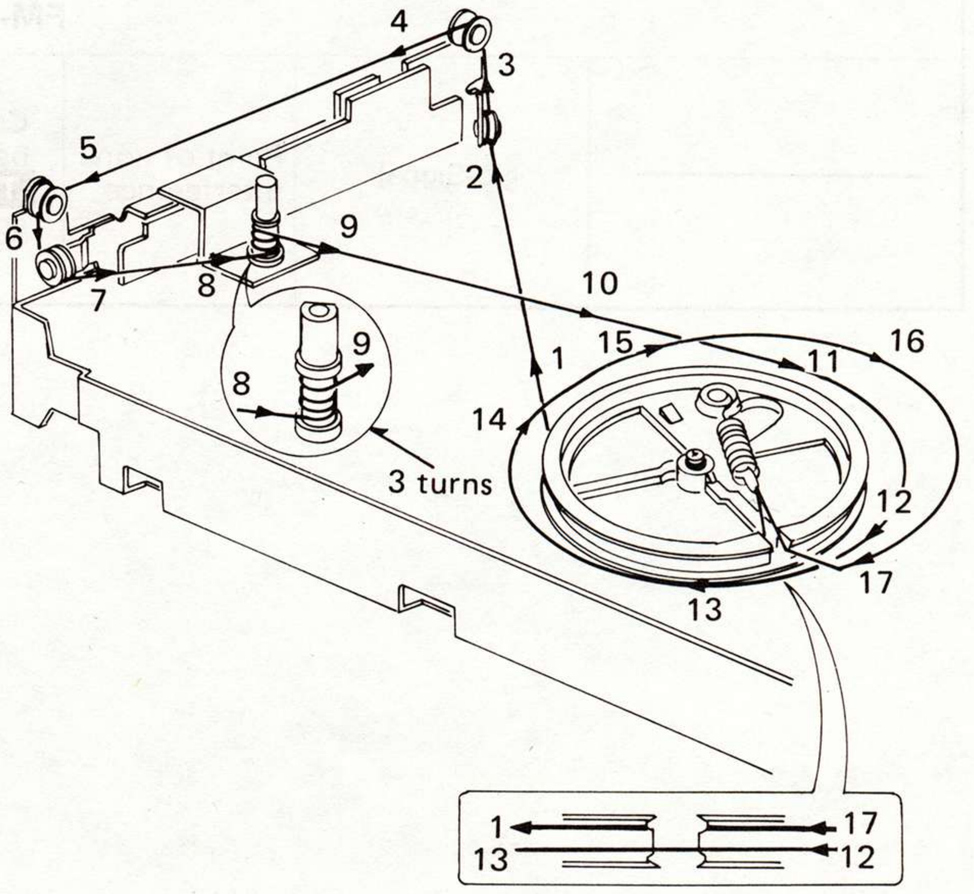
★ When mounting the power IC, apply silicone compound (SZZOL15) or equivalent heat diffuser to the rear side of power IC.

■ DIAL CORD INSTALLATION GUIDE

1. Prepare a fresh cord more than 110.6 cm length. **(Refer to Fig. 1)**
2. Bring the variable capacitor into a state where the drum is completely turned to the left (minimum capacity and highest frequency for the variable capacitor).
3. Direct the cord in the order from 1 to 17. **(Refer to Fig. 2)**
4. Fix the knob of the cord with the bond.



[Fig. 1]



[Fig. 2]

■ MEASUREMENTS AND ADJUSTMENTS

TUNER

AM ADJUSTMENT

*** Setting and Equipment used**

1. AC electronic voltmeters (EVM) or oscillator.
2. AM signal generator (AM-SG).
3. Maintain line voltage at rated voltage.
4. Set band selector to "AM" position.
5. Output of signal generator should be no higher than necessary to obtain an output reading.
6. Use a non-metal screwdriver for the adjustment.

Step No.	AM SIGNAL GENERATOR CONNECTION	AM SIGNAL GENERATOR FREQUENCY	DIAL SETTING	PREPARATIONS	PARTS ADJUSTED	ADJUSTING PROCEDURE
	AM-IF ADJUSTMENT					
1	Connect AM-SG to AM antenna terminal through 200 pF capacitor. Common to chassis. (powerful input) (Refer to Fig. 3.)	450 kHz (30% Mod. with 400 Hz)	450 kHz (f. max.)	Connect AC EVM or scope to "Speaker" terminals.	T201 (IFT)	1. Adjust for maximum output. 2. Adjust core of T201 by screwdriver.
	AM-RF ADJUSTMENT					
2	Connect AM-SG to AM antenna terminal through 200 pF capacitor. Common to chassis. (Weak input) (Refer to Fig. 3.)	513 kHz (30% Mod. with 400 Hz)	513 kHz (f. min.)	Connect AC EVM or scope to "Speaker" terminals.	L206 (OSC. coil)	1. Adjust for maximum output. 2. Adjust core of L206 by screwdriver.
3		600 kHz (30% Mod. with 400 Hz)	600 kHz	Connect AC EVM or scope to "Speaker" terminals.	L205 (ANT. coil)	1. Adjust for maxinum output. 2. Adjust core of L205 by screwdriver.
4		1665 kHz (30% Mod. with 400 Hz)	1665 kHz) (f. max.)	Connect AC EVM or scope to "Speaker" terminals.	CT203 (ANT. trimmer) CT204 (OSC. trimmer)	1. Adjust for maximum output. 2. Repeat steps (2), (3) and (4).

FM ADJUSTMENT

*** Setting and Equipment used**

1. FM signal generator (FM-SG).
2. Distortion analyser.
3. Oscilloscope
4. DC electronic voltmeters (EVM).
5. Frequency counter (19 kHz and 108 MHz measurable).
6. Set band selector to "FM" position.
7. Set FM mode selector to "mono" position.
8. Other setting are the same as in AM adjustment.

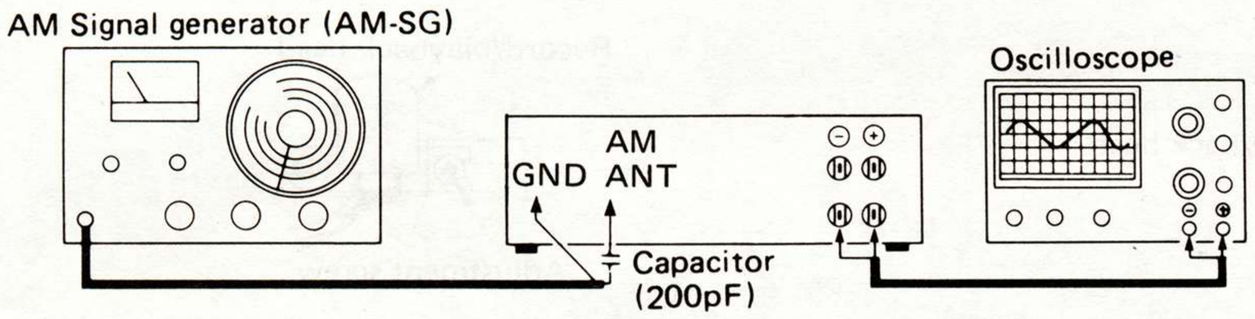
*** Preparation of FM signal generator (FM-SG)**

1. The standard input of the set is 60 dB (1 mV), 400 Hz, 100% modulation (Because of attenuation, using coaxial cables. SG output must be 6 dB plus. That is, when input 60 dB, SG output is to be 66 dB.)

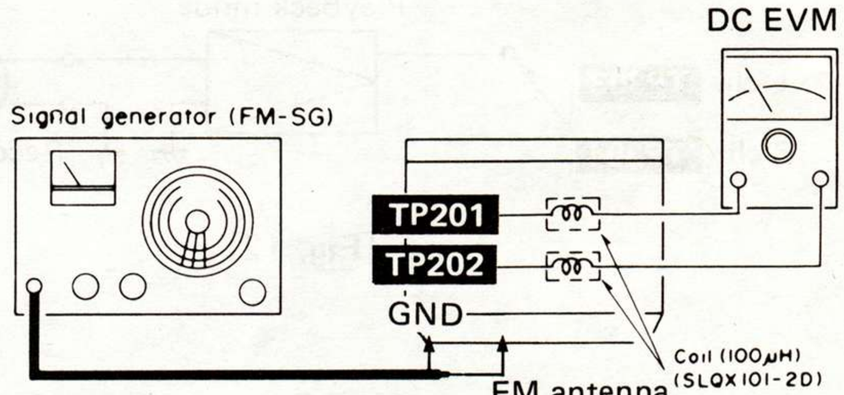
Step No.	FM SIGNAL GENERATOR CONNECTION	FM SIGNAL GENERATOR FREQUENCY	DIAL SETTING	PREPARATIONS	PARTS ADJUSTED	ADJUSTING PROCEDURE
	FM-IF ADJUSTMENT					
5	———	No-Signal	Point of non-interference	Connect DC EVM between **TP201** and **TP202** through choke coil. (Refer to Fig. 4.)	T202 (Discri. IFT)	1. FM mode switch to "auto" position. 2. Adjust T202 core so that voltage measured in signal mode is 0 mV in 300 mV range.

	FM SIGNAL GENERATOR		DIAL SETTING	PREPARATIONS	PARTS ADJUSTED	ADJUSTING PROCEDURE
	CONNECTION	FREQUENCY				
	FM-RF ADJUSTMENT					
6	Connect FM-SG to FM antenna terminal referring to Fig. 5. (Weak input)	87.25 MHz (100% Mod. with 400 Hz)	87.25 MHz (f. min.)	Connect scope to "Speaker" terminal.	L204 (OSC. coil)	1. Add weak input so that noise is included in the output waveform. 2. Make the adjustment so that the output waveform is vertically symmetrical. (Fig. 6) 3. Repeat the steps (8), (9) and (10) until the frequency correctly matches the dial scale.
7		96 MHz (100% Mod. with 400 Hz)	96 MHz	Connect scope to "Speaker" terminal.	CT201 (ANT. trimmer)	
8		108.9 MHz (100% Mod. with 400 Hz)	108.9 MHz (f. max.)	Connect scope to "Speaker" terminal.	CT202 (OSC. trimmer)	

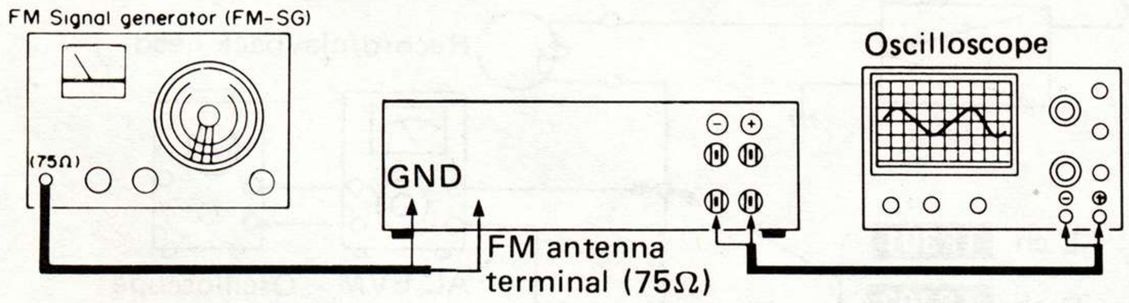
FM MPX V.C.O. ADJUSTMENT	
USING A FREQUENCY COUNTER	USING ALTERNATE SYSTEM
9 1. 98.0 MHz, 60 dB Non-modulated mono signal applied to set. 2. FM mode switch to "auto" position. 3. Connect frequency counter to **TP501** through resistor (100kΩ) referring to Fig. 7. 4. Adjust **VR201** to 19 kHz ± 30 Hz.	1. Apply stereo signal from generator or stereo station to tuner. 2. Adjust **VR201** until stereo indicator lights up. Cement arm of **VR201** as shown in Fig. 8.



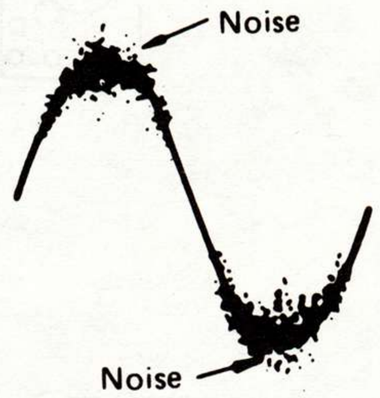
[Fig. 3]



[Fig. 4]

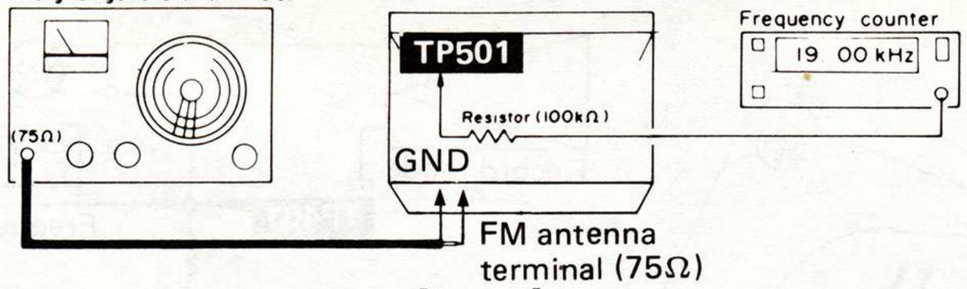


[Fig. 5]

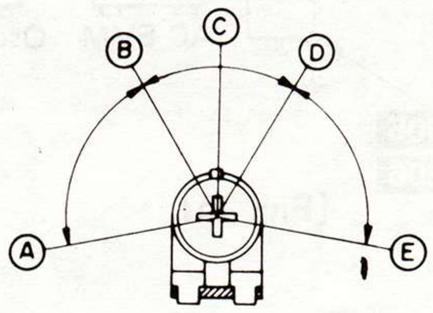


AF output waveform

[Fig. 6]



[Fig. 7]

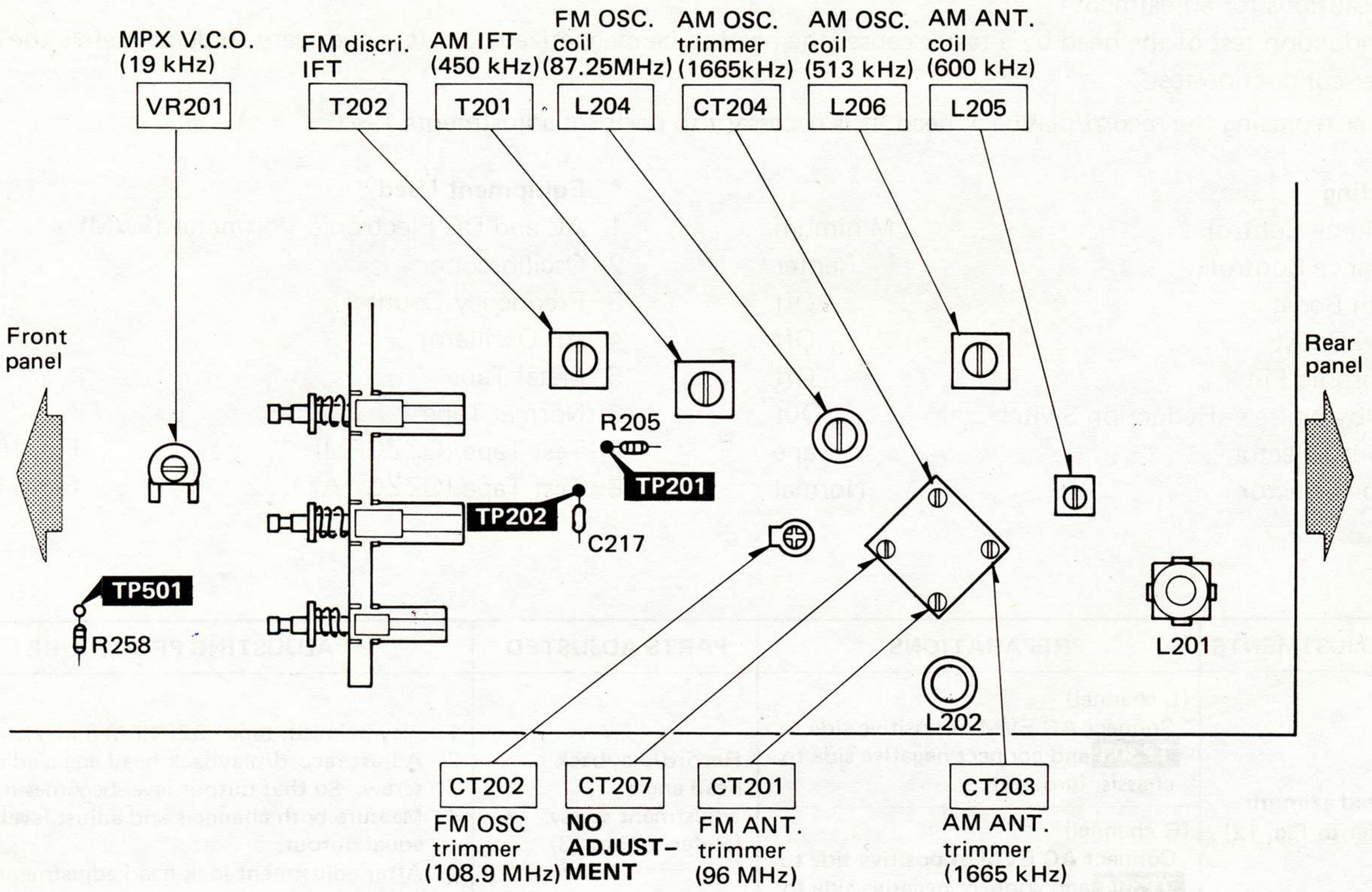


VR201

Ⓐ−Ⓑ, Ⓓ−Ⓔ : Stereo OFF position.
Ⓑ−Ⓓ : Stereo ON position. (indicator lighting)
Ⓒ : Adjustment point of pilot circuit

[Fig. 8]

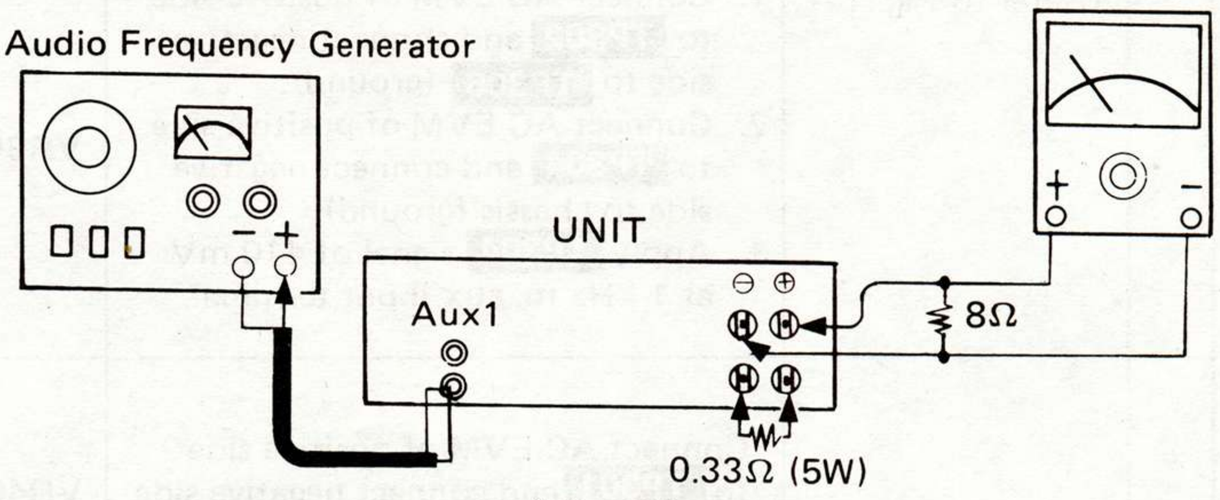
- **Adjustment points of tuner**



AMPLIFIER

- **Checks of Protection Circuit After Repair and Adjustment.**
  - ★ **Check of Overload Detection and Protection Circuit [Overload Detection Circuit]**

1. Connect 8Ω (resistor or speaker) to main speaker terminal (L channel).
2. Apply output signal from A.F. Generator of about 4V at 1 kHz to Aux input terminal.
3. Make sure that no output is delivered when short-circuited with 5W, 0.33Ω resistor.
4. Remove the resistor (0.33Ω).
5. When power switch is turned "on" after turning it "off", then output should be delivered.
6. Similary check the R channel.



[Fig. 9]

CASSETTE DECK

- Precautions for adjustment

1. Conduction test of the head by a tester causes the head to be magnetized. So, it is necessary to demagnetize the head after conduction test.
2. After replacing the record/playback head, it is necessary to perform adjustments 1 ~ 5.

*** Setting**

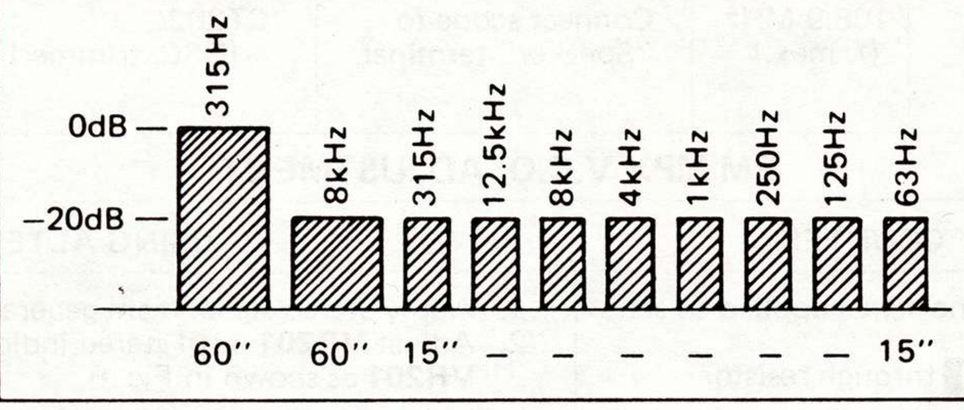
1. Volume Control . . . . . Minimum
2. Balance Control . . . . . Center
3. High Boost . . . . . Off
4. Low Boost . . . . . Off
5. Subsonic Filter . . . . . Off
6. Dolby Noise – Reduction Switch . . . . . Out
7. Input Selector . . . . . Tape
8. Tape Selector . . . . . Normal

*** Equipment Used**

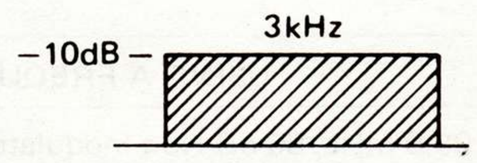
1. AC and DC Electronic Voltmeter (EVM).
2. Oscilloscope.
3. Frequency Counter
4. AF Oscillator
5. Metal Tape
6. Normal Tape
7. Test Tape (QZZCFM) . . . . . Fig. 10
8. Test Tape (QZZCWAT) . . . . . Fig. 11

No.	ADJUSTMENTS	PREPARATIONS	PARTS ADJUSTED	ADJUSTING PROCEDURE
1	Head azimuth (Refer to Fig. 12)	(L channel) Connect AC EVM of positive side to **TP303** and connect negative side to chassis (ground).	Record/playback head angle adjustment screw. (Refer to Fig. 13)	1. Play azimuth tape (QZZCFM 8 kHz). 2. Adjust record/playback head angle adjustment screw. So that output level becomes maximum. 3. Measure both channels and adjust levels for equal output. 4. After adjustment lock head adjustment screw with lacquer.
		(R channel) Connect AC EVM of positive side to **TP304** and connect negative side to chassis (ground).		
2	Playback gain (Refer to Fig. 12)	Connect AC EVM of positive side to **TP303** and connect negative side to chassis (ground).	VR301 (L channel)	1. Set the tape selector switch to "normal" position. 2. Set the Dolby NR switch to "in" position. 3. Playback the 315 Hz (0 dB) frequency characteristic test tape (Fig. 10). Then adjust VR301 and VR302 so that the output becomes 560 mV ~ 600 mV.
		Connect AC EVM of positive side to **TP304** and connect negative side to chassis (ground).	VR302 (R channel)	
3	Recirod bias current (Refer to Fig. 14)	1. Connect AC EVM of positive side to **TP301** and connect negative side to **TP305** (ground). 2. Connect AC EVM of positive side to **TP303** and connect negative side to chassis (ground). 3. Apply **TP303** signal of 410 mV at 1 kHz to aux input terminal.	VR303 (L channel)	1. Short-circuit the erase head with clip-cord. 2. Set the tape selector switch to "normal" position. 3. Set a cassette tape on the deck and shift the unit into recording mode. 4. Adjust VR303 and VR304 so that the output of **TP301** (L) and **TP302** (R) are 0.33 mV ~ 0.37 mV.
		1. Connect AC EVM of positive side to **TP302** and connect negative side to **TP306** (ground). 2. Connect AC EVM of positive side to **TP304** and connect negative side to chassis (ground). 3. Apply **TP304** signal of 410 mV at 1 kHz to aux input terminal.	VR304 (R channel)	
4	Record bias (Refer to Fig. 15)	Connect AC EVM of positive side to **TP301** and connect negative side to **TP305** (ground).	VR401 (L channel)	1. Set the tape selector switch to "normal" position. 2. Shift the unit into recording mode. 3. Adjust VR401 and VR402 for 4.2 mV reading on EVM. **Standard value** Tape selector position / Voltage Metal / 8.1 ~ 9.1 mV CrO_2 / 4.9 ~ 5.5 mV Normal / 4.1 ~ 4.5 mV
		Connect AC EVM of positive side to **TP302** and connect negative side to **TP306** (ground).	VR402 (R channel)	

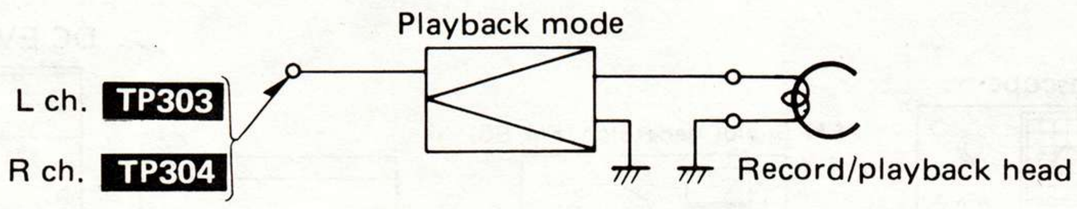
No.	ADJUSTMENTS	PREPARATIONS	PARTS ADJUSTED	ADJUSTING PROCEDURE
5	Erase current (Refer to Fig. 16)	Connect frequency counter of positive side to **TP401** and connect negative side to **TP402** (ground).	L401	1. Set the tape selector switch to "Metal" position. 2. Beat proof selector switch to "A" position. 3. Adjust L401 to 87 kHz.
6	Motor speed	1. Connect frequency counter to speaker terminals. 2. Play the test tape (Fig. 11 : QZZCWAT).	Motor speed adjustment screw (Refer to Fig. 17)	1. Set the tape selector switch to "normal" position. 2. Adjust the adjustment screw at the rear of the motor so that the output frequency of the speaker terminal is 2970 ~ 3030 Hz.

Reference	Controls of recording (QZZCFM)
Recording level: −20dB & 0dB, 160nWb/m Equalizer: 3180μs, 120μs Tape speed: 4.75 cm/sec. Recording time: 4 min. Content: Only for once as specified in drawing	

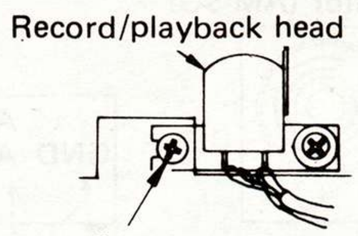
[Fig. 10]

(QZZCWAT)
Tape speed: 4.75 cm/sec. 

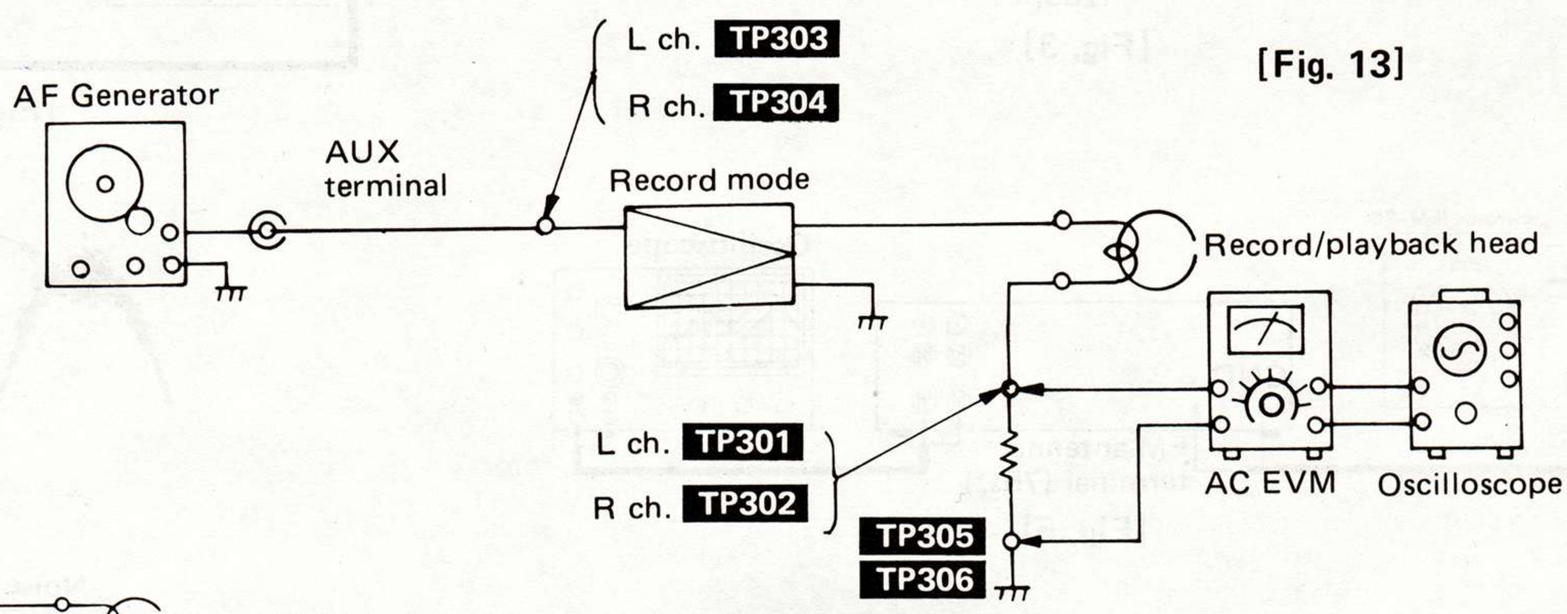
[Fig. 11]



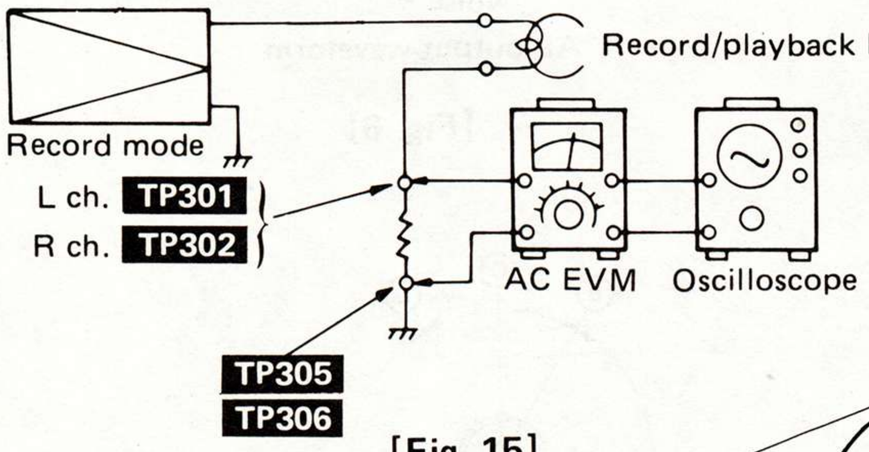
[Fig. 12]



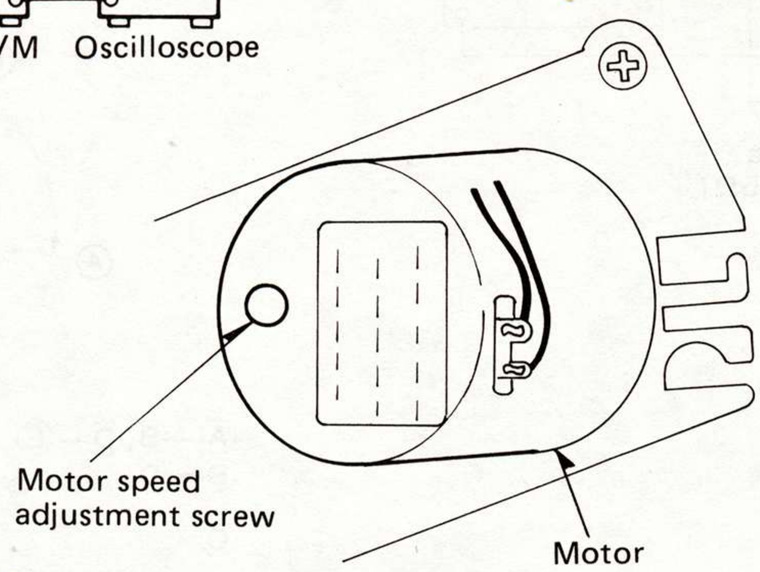
[Fig. 13]



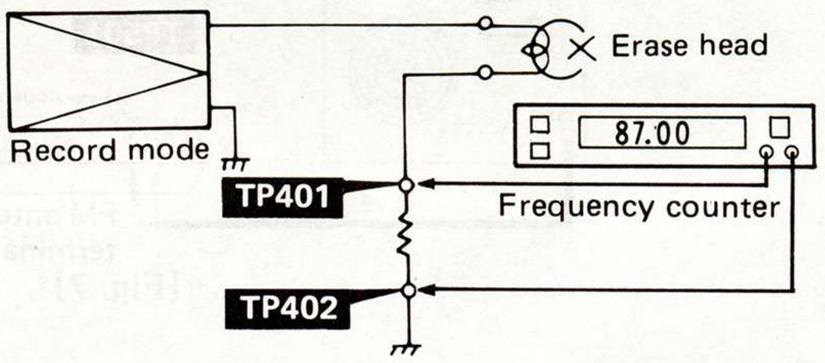
[Fig. 14]



[Fig. 15]

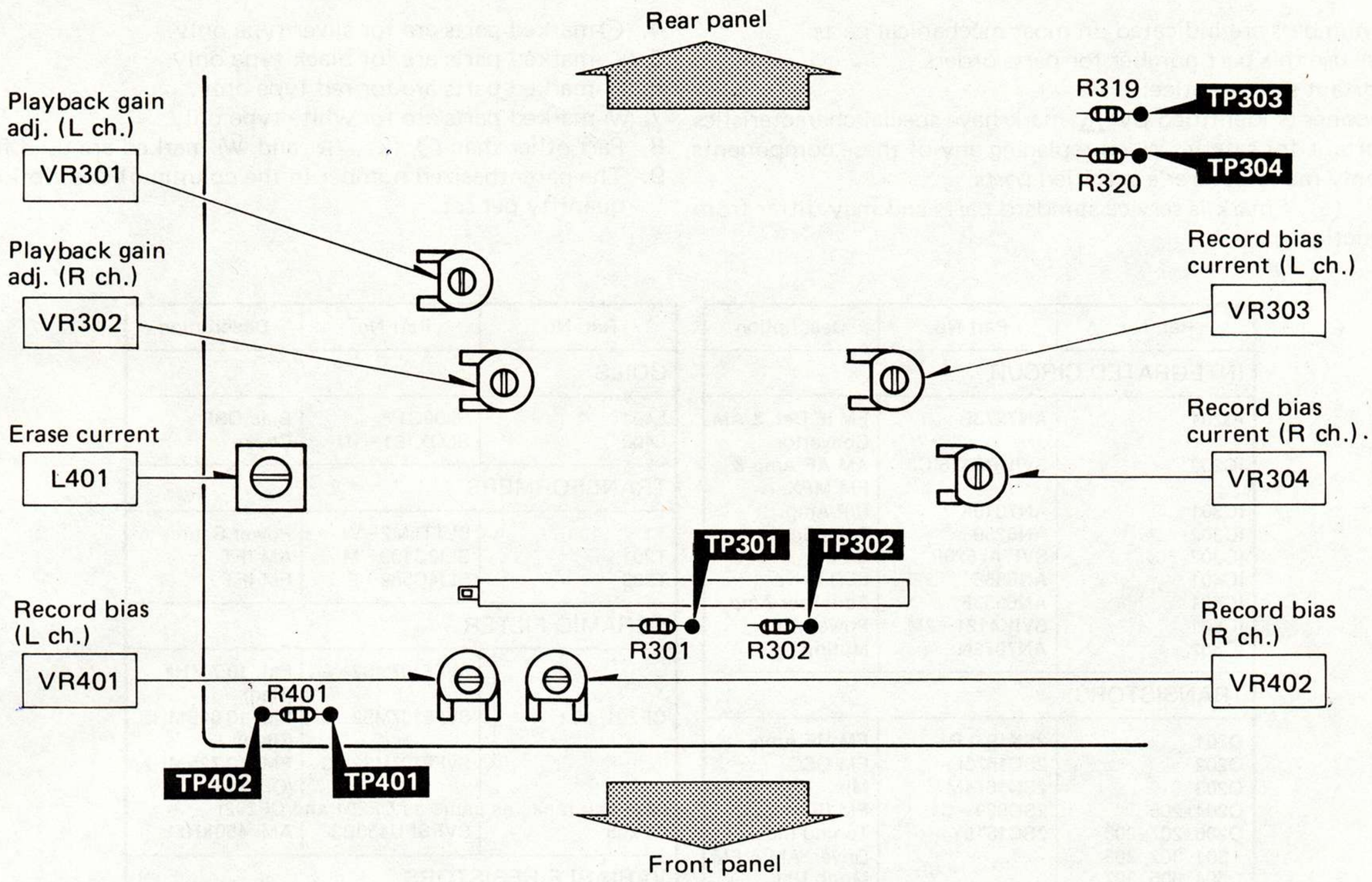


[Fig. 17]



[Fig. 16]

- **Adjustment points of cassette deck**



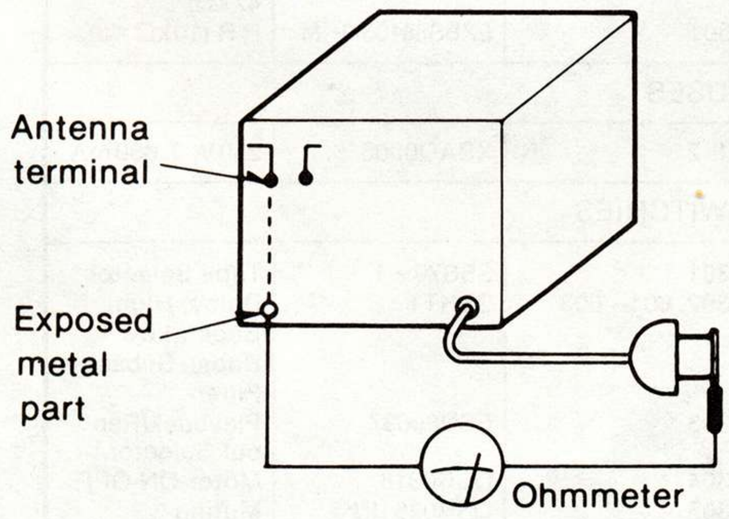
■ SAFETY PRECAUTION

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

• INSULATION RESISTANCE TEST

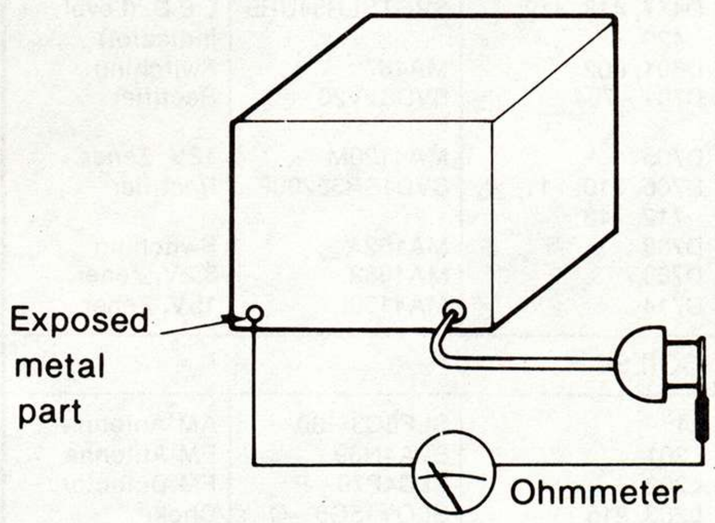
1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between 3MΩ and 5.2MΩ to all exposed parts. (Fig. A) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. B)

Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.



(Fig. A)

Resistance = 3MΩ—5.2MΩ



(Fig. B)

Resistance = Approx ∞

4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

■ REPLACEMENT PARTS LIST AND EXPLODED VIEWS

Notes:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. The " Ⓢ " mark is service standard parts and may differ from production parts.
4. ○-marked parts are for silver type only.
5. Ⓚ-marked parts are for black type only.
6. Ⓡ-marked parts are for red type only.
7. Ⓦ-marked parts are for white type only.
8. Part other than ○, Ⓚ, Ⓡ and Ⓦ-marked are used for all color type.
9. The parenthesized number in the column of description stand for the quantity per set.

Ref. No.	Part No.	Description
INTEGRATED CIRCUIT		
IC201	AN7273B	FM IF Det. & AM Convertor
IC202	SVIUPC116IC3	AM AF Amp & FM MPX.
IC301	AN7010K	R/P Amp.
IC302	AN6256	Tape Selector
IC303, 304	SVITA7629P	Dolby
IC401	AN6888	LED Drive
IC501	AN6553F	Equalizer Amp.
IC601	SVIK4121−2M	Power Amp.
IC602	AN7072N	Muting
TRANSISTORS		
Q201	2SK193LF	FM RF Amp.
Q202	2SC1675LI	FM OSC
Q203	2SC1674M	Mix.
Q204, 205	2SC829−C1	FM IF Amp.
Q206, 207, 208, 301, 302, 303, 304, 305, 307, 308, 405, 406, 501	2SC1815Y	Tuning Ind. Driver, AM & FM Mono Det., Muting, Rec Signal Amp., Discharge of ALC, ALC DC Amp.
Q306	2SC1583−G	ALC
Q401	2SC1815Y	Beat Proof
Q402	2SC1384NC−R	Bias OSC
Q403, 404, 407, 408, 502, 603	2SA1015Y	Switching Tape Selector, Muting Mic Amp. Thermal Protector, Mic Amp.
Q601, 602	2SA992E	Over Load Det.
Q701	2SB941−P	Regulator
Q702	2SD1275Q	Regulator
Q703	2SD1265−O	Regulator
DIODES		
D201	MA345	AFC
D202, 302	SVDMC921	Switching
D203, 204, 206, 401, 501, 707	MA165	Switching
D205	MA1047−M	4.7V, Zener
D208, 209	SVGTSLB15UR5	L.E.D. (Tuning)
D301	SVDMC911	Switching
D411, 412, 413, 414, 415, 416	SVGTSLR54DU5	L.E.D. (Level Indicator)
D417, 418, 419, 420	SVGTSLR54UR5	L.E.D. (Level Indicator)
D601, 602	MA167	Switching
D701∼704 ⚠	SVDS2V20	Rectifier
D705	MA4120M	12V, Zener
D706, 710, 711, 712, 713 ⚠	SVD1SR35200F	Rectifier
D708 Ⓢ	MA162A	Switching
D709	MA1082	8.2V, Zener
D714	MA4150L	15V, Zener
COILS		
L1	SLF6C3−30	AM Antenna
L201	SLA4N39	FM Antenna
L202	SLD4P79−P	FM Detector
L203, 215	SLQY15G5−O	Choke
L204	SL04P121−P	FM OSC
L205	SLA2B7	AM Antenna
L206	SL02C33−P	AM OSC
L213, 214	SLM5B2−1P	LPF
L301, 302, 303, 304	SLM1C77−K	Bias Trap
L305, 306	SLQX302−1M	Choke

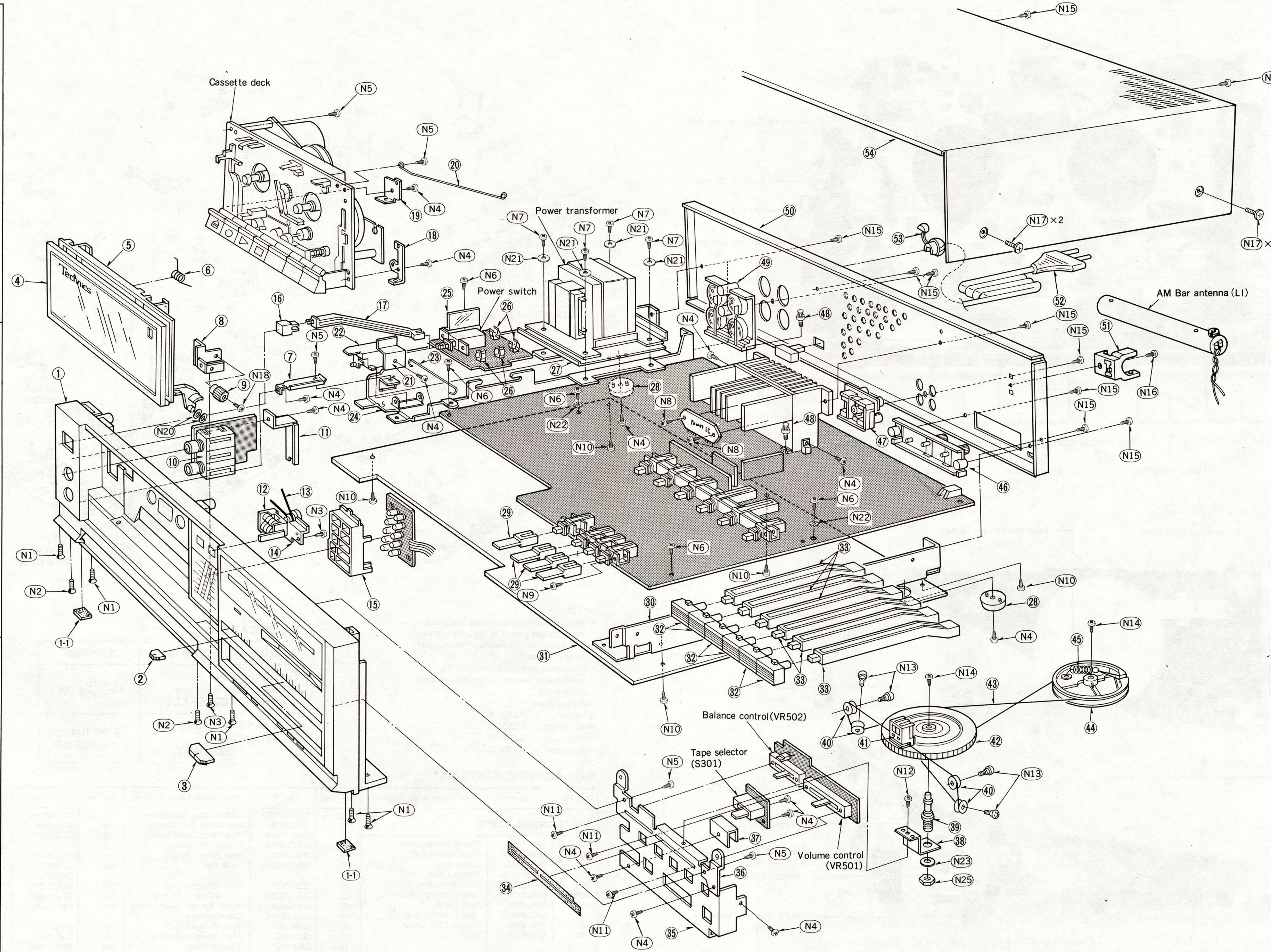
Ref. No.	Part No.	Description
COILS		
L401	SL09C1	Bias OSC
L402	SLQX181−1D	Choke
TRANSFORMERS		
T1 ⚠	SLTT5M2−W	Power Source
T201	SLI2C139−M	AM IFT
T202	SLI4C539−P	FM IFT
CERAMIC FILTER		
CF201, 202	SVFE107MS2−A	FM, 10.7MHz (Red)
	SVFE107MS2−B	FM, 10.625MHz (Blue)
	SVFE107MS2−C	FM, 10.725MHz (Orange)
(Use pair ranks as same as CF201 and CF202)		
CF203	SVFSFU450B3	AM, 450kHz
VARIABLE RESISTORS		
VR201	EVN61AA00B53	FM MPX VCO Adj., 5kΩ (B)
VR301, 302	EVN61AA00B24	Playback Gain Adj. 20kΩ (B)
VR303, 304	EVN61AA00B54	Record Bias Current Adj., 50kΩ (B)
VR401, 402	EVN61AA00B15	Record Bias Adj., 100kΩ (B)
VR501	EWAPB1C15A15	Volume Control, 100kΩ (A)
VR502	EWAMH1S15G15	Balance Control, 100kΩ (G)
THERMAL DETECTOR		
PS601	SRPBB47101	60° (140°F)
VARIABLE CAPACITORS		
CT202	SVCTZ03Z100F	Trimmer, FM OSC
CV201∼204, CT201, 203, 204, 207	SVCTCB41T318	Tuning
COMPONENT COMBINATIONS		
Z201,202	EXRP181K473C	C-R (180pF, 47kΩ)
Z501	EXBS88103K−M	R-R (10kΩ×8)
FUSES		
F1, 2 ⚠	XBAQ0008	250V, T 630mA
SWITCHIES		
S301	SSS79−1	Tape Selector
S302, 601∼603	SSHT1	Dolby, Hight Boost, Low Boost, Subsonic Filter
S303	ESD80637	Playback/Rec out Selector
S304	QSB0318	Motor ON-OFF
S305	QSB0251IU	Muting
S401	SSS67	Beat Proof
S501∼505, 507	SSHT4	Input Selector, FM Auto
S701 ⚠	ESB8213V	Power Source

Ref. No.		Part No.	Description	
CABINET and CHASSIS PARTS				
1	○	SGWAK2−SE	Front Panel (Silver Type)	(1)
1	Ⓚ	SGWAK2−KE	Front Panel (Black Type)	(1)
1	Ⓡ	SGWAK2−RE	Front Panel (Red Type)	(1)
1	Ⓦ	SGWAK2−WE	Front Panel (White Type)	(1)
[1-1		[SHG338	Foot	(4)
2		SBD63	Knob, Balance	(1)
3		SBDT1	Knob, Volume	(1)
4	○	SGEAK2−SE	Cassette Lid (Silver Type)	(1)
4	Ⓚ	SGEAK2−KE	Cassette Lid (Black Type)	(1)
4	Ⓡ	SGEAK2−RE	Cassette Lid (Red Type)	(1)
4	Ⓦ	SGEAK2−WE	Cassette Lid (White Type)	(1)
5		SGEAK2L−KE1	Cassette Holder	(1)
6		SMQT6−1	Spring	(1)
7		SUWT2	Bracket	(1)
8		SMQT3	Bracket	(1)
9		SMQ4096	Gear	(1)
10		SJJT1	Jack, Mic/ Headphones	(1)
11		SMNT1	Bracket, Jack	(1)
12		SMQT4	Tape Counter	(1)
13		SMQ4744	Belt, Tape Counter	(1)
14		SMQT2	Bracket, Tape Counter	(1)
15		SMPT1	Holder, L.E.D	(1)
16		SBC425−1T	Button, Power Source Switch	(1)
17		SUB153	Connection Rod, Power Source Switch	(1)
18		QMA4767	Bracket, Cassette Deck	(1)
19		QMA4766	Bracket, Cassette Deck	(1)
20		SUST1	Spring	(1)
21		SMQT1−1	Bracket, Rec Lever	(1)
22		SMQT7	Bracket, Rec Lever	(1)
23		SMQT5−1	Lever	(1)
24		SMLT1	Bracket, Power Transformer	(1)
25		SMXT2	Insulation Plate	(1)
26		SJF118	Holder, Fuse	(4)
27		SMLT2	Bracket, Power Transformer	(1)
28		SKL249	Foot	(2)
29		SBC458−2	Button, Filter, Dolby NR	(4)
30		SUWT1	Bracket, Right Side	(1)
31		SYUT1	Bottom Board	(1)
32		SBCT1	Button, Input Selector Switch	(6)
33		SUBT1	Connection Rod, Input Selector Switch	(6)
34		SHST1	Sheet	(1)
35		SUWT5	Bracket, Button	(1)
36		SUWT4	Bracket, Roller	(1)
37		SUWT6	Bracket	(1)
38		SUWT3	Bracket, Tuning Shaft	(1)
39		SDTT1	Tuning Shaft	(1)
40		SDR3	Roller, Dial Cord	(4)
41		SDPT1	Pointer, Dial	(1)
42		SBNAK2L−KE	Knob, Ass'y	(1)
43		RDZ05−3B	Dial Cord	(113.6cm)
44		SDD57−1	Drum	(1)
45		RDS4170A	Spring, Drum	(1)

Ref. No.		Part No.	Description	
CABINET and CHASSIS PARTS				
46		SJF4316	Terminal Board, Antenna	(1)
47		SJFT1	Terminal Board, Phono, CD/AUX	(1)
48		SHR9094	Lock Pin	(2)
49		SJF4431−1	Terminal Board, Speaker	(1)
50		SGPT1C	Rear Panel	(1)
51		SMA243−4	Holder, Antenna	(1)
52	⚠	SJA138−3	AC Cord	(1)
53		SHR127	Bushing, AC Cord	(1)
54	○	SKCAK2L−SK	Cabinet (Silver Type)	(1)
54	Ⓚ	SKCAK2L−KK	Cabinet (Black Type)	(1)
54	Ⓡ	SKCAK2L−RK	Cabinet (Red Type)	(1)
54	Ⓦ	SKCAK2−WE	Cabinet (White Type)	(1)
SCREWS				
N1		XTN3+8F	Tapping, ⊕3×8	(5)
N2		XTS3+8JFXR	Tapping, ⊕3×8	(2)
N3		XTS3+8J	Tapping, ⊕3×8	(2)
N4		XTB3+8J	Tapping, ⊕3×8	(13)
N5		XTB3+8JFXR	Tapping, ⊕3×8	(5)
N6		XTW3+8T	Tapping, ⊕3×8	(5)
N7		XTB4+8F	Tapping, ⊕4×8	(4)
N8		XTB3+14J	Tapping, ⊕3×14	(2)
N9	Ⓢ	XSN3+6S	⊕3×6	(1)
N10		XTW3+8SFXR	Tapping, ⊕3×8	(5)
N11	Ⓢ	XSS2+3	⊕2×3	(3)
N12		XTB3+6J	Tapping, ⊕3×6	(1)
N13		SHD3X21F−1	Roller	(4)
N14		XYN26+F7	⊕2.6×7	(2)
N15		XTB3+8JFZ	Tapping, ⊕3×8	(12)
N16		XTB3+10JFZ	Tapping, ⊕3×10	(1)
N17	○Ⓡⓦ	SNE2095−4	Cabinet	(4)
N17	Ⓚ	SNE2095−5	Cabinet	(4)
N18		SNE270	Gear	(1)
WASHERS				
N20		SNW422−2	Cassette Holder	(2)
N21		XWE4E10	Plain, φ4 (Power Transformer)	(4)
N22	Ⓢ	XWC3B	External Toothed Lock, φ3	(2)
N23	Ⓢ	XWV8	Spring, φ8	(1)
NUT				
N25	Ⓢ	XNS8	φ8	(1)
ACCESSORIES				
A1		SQX53215	Instruction Book	(1)
A2		SSA269	FM Antenna Cord	(1)
PACKING PARTS				
P1		SPNT5	Sheet, Loop Antenna	(1)
P2		SPP701	Polyethylene Bag	(1)
P3		XZB24X40C05	Polyethylene Bag (Instruction Book)	(1)
P4		SPNT4	Pad, Left Side	(1)
P5		SPNT3	Pad, Right Side	(1)
P6		SPNT6	Pad, Upper	(1)
P7		SPH6400	Sheet	(1)
P8		SPNT7	Carton Box	(1)
P9	○	SGK1411	Label (Silver type Only)	(2)
P9	Ⓡ	SGK1743	Label (Red type only)	(2)
P9	Ⓦ	SGK1743−2	Label (White type Only)	(2)

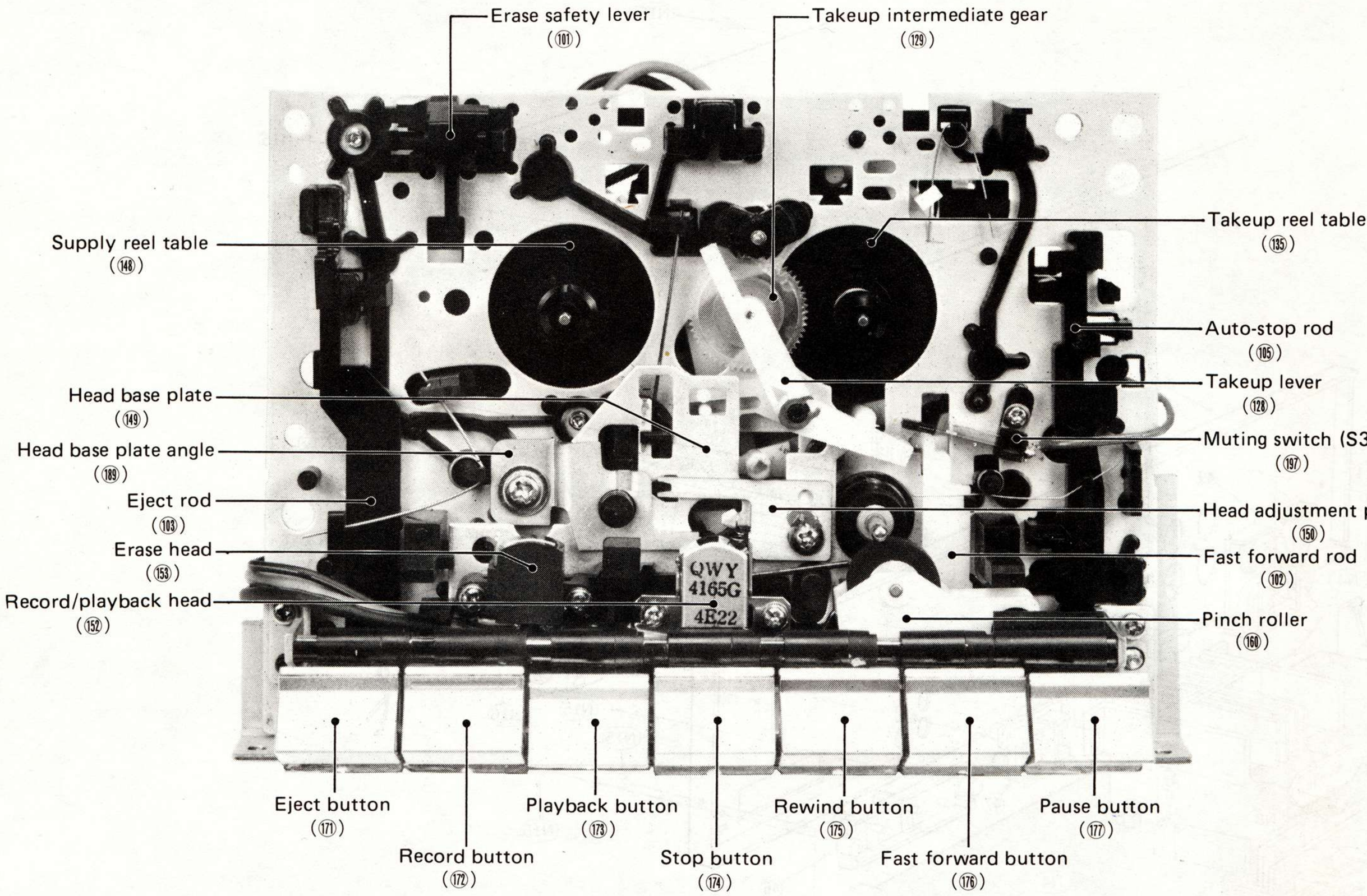
SA-K2

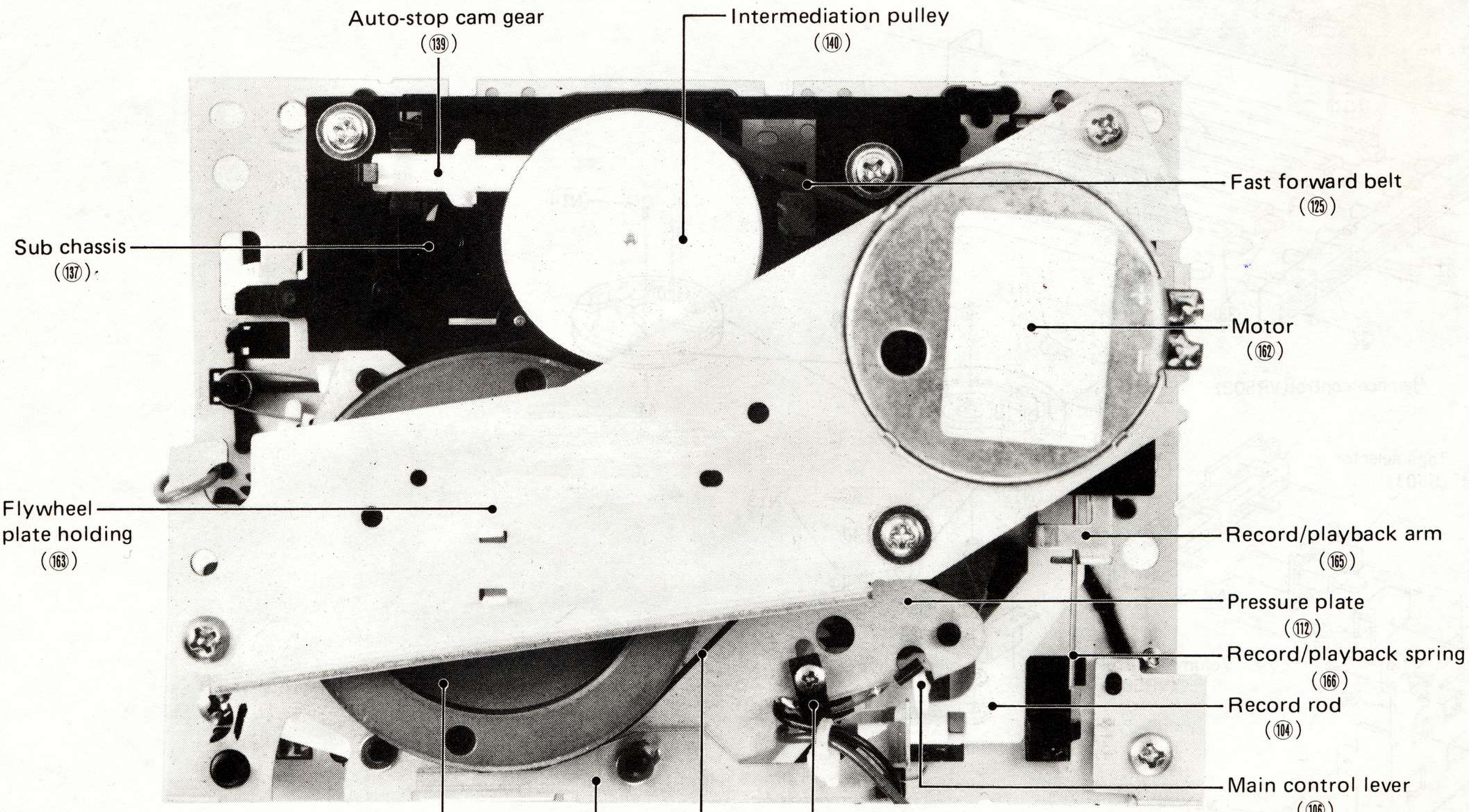
- **Chassis View**



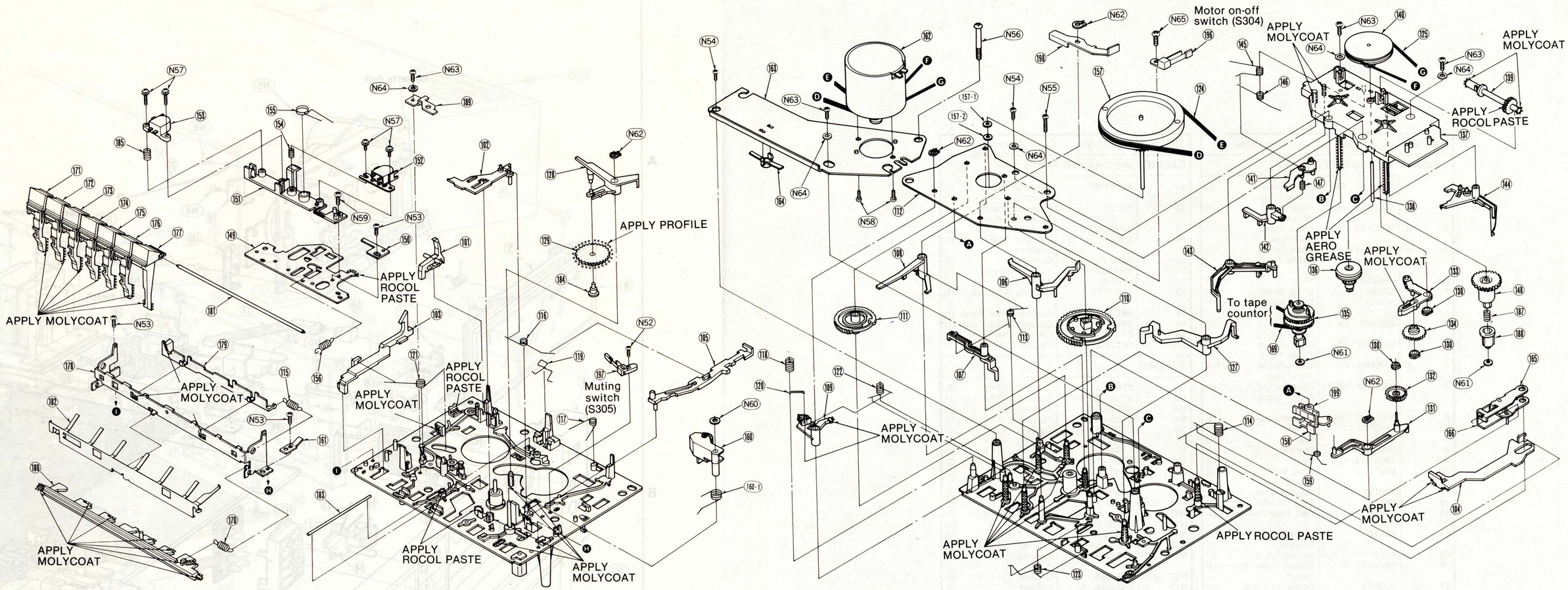
A	4 5 6 16 17 19 18 25 20 26 49 50 54 53 52 51
B	1 10 8 9 12 14 7 13 11 22 24 15 21 23 26 29 29 27 30 28 48 48 33 47 46 28
C	1-1 2 3 1-1 34 31 32 35 32 32 36 37 33 33 40 41 39 38 40 42 43 45 44

• Location Parts No. of Cassette Deck





• Cassette Deck View



NOTES:

- When changing mechanism parts, apply the specified grease to the area marked "xx" shown in the drawing "Mechanical Parts Location".
- The grease and or oil shown in the parentheses function to pervent friction (lubrication).

Parts Location:
Molycoat RZZOL05
Rocol paste.....RZZOL06
Profile SZZOL18
Aero grease.....RZZOL04

SPECIFICATIONS

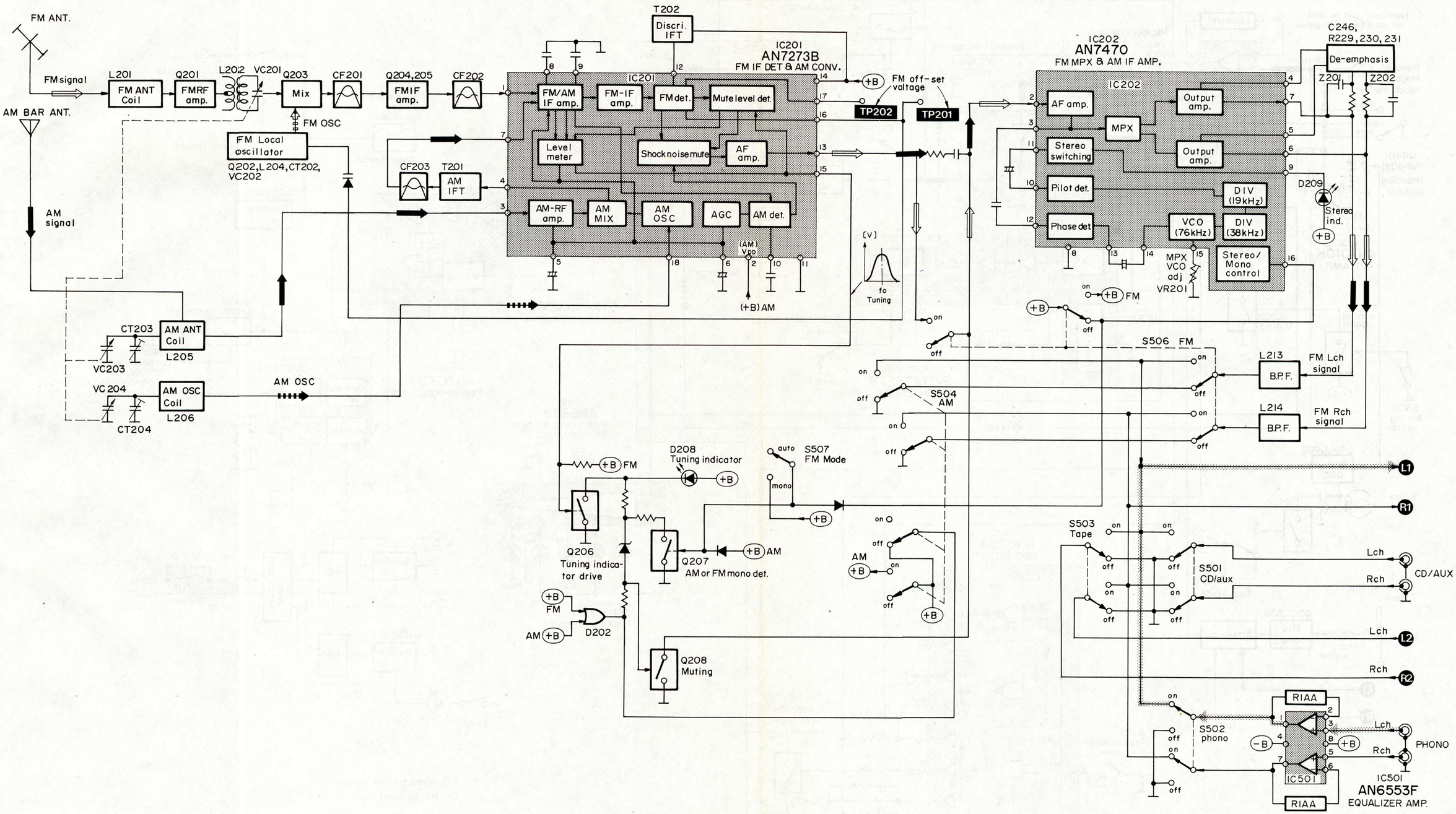
Pressure of pressure roller	350±50g
Takeup tension * Use cassette torque meter.....QZZSRKCT	45^{+15}_{-10}g-cm
Wow and flutter; (JIS) * Use test tape .....QZZCWAT	Less than 0.1% (WRMS)

REPLACEMENT PARTS LIST

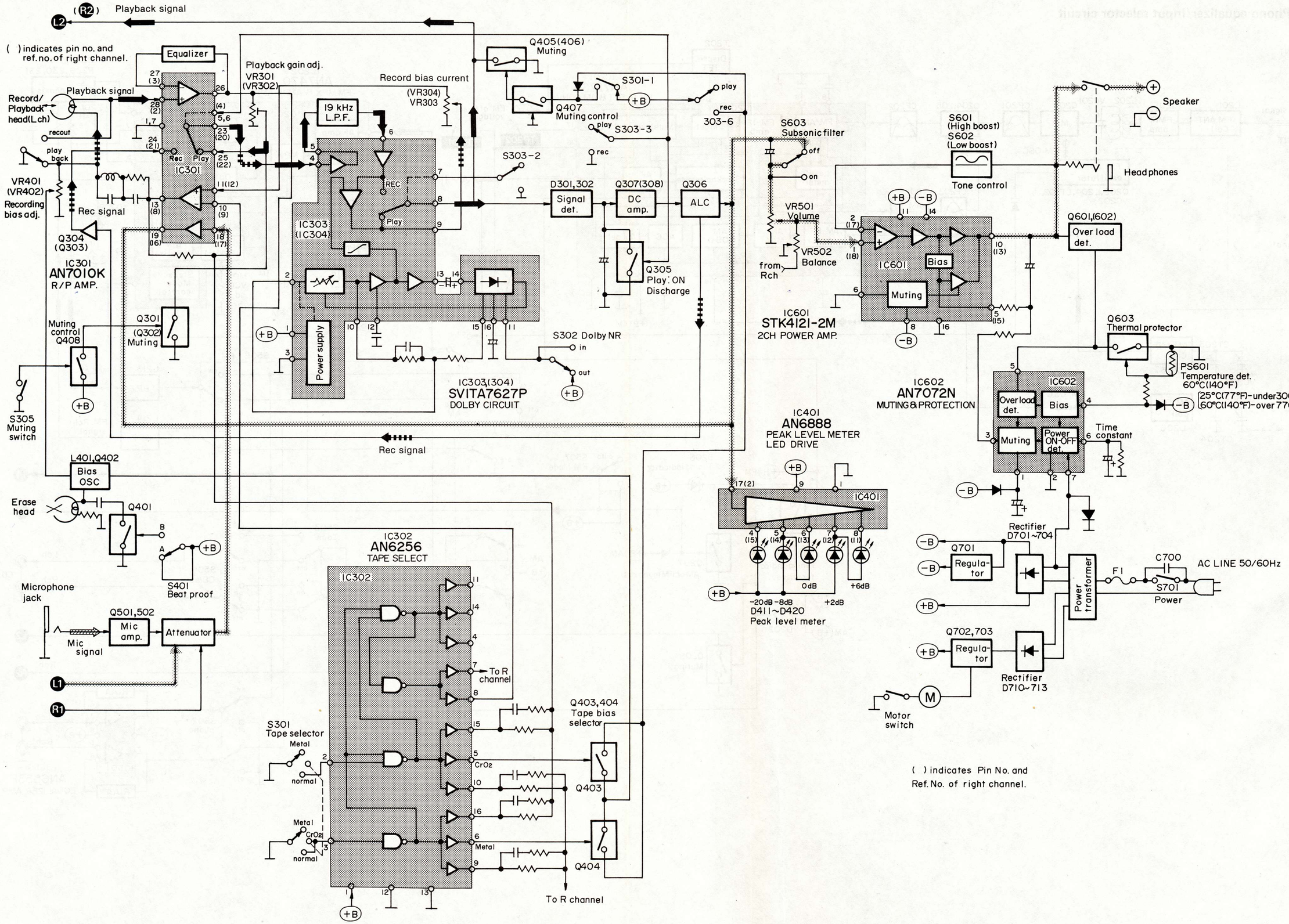
Ref. No.	Part No.	Part Name & Description
	MECHANICAL PARTS	
101	QML4156	Erase Safety Lever
102	QMR2144A	Fast Forward Rod
103	QMR2145A	Eject Rod
104	QMR2146A	Record Rod
105	QMR2149A	Auto-Stop Rod
106	QML4152	Main Control Lever
107	QML4094	Sub Lever
108	QML4095C	Sub Control Lever
109	QML4096	Pause Lock Lever
110	QDG1330	Main Gear
111	QDG1331	Sub Gear
112	QMF2333A	Pressure Plate
113	QBN2035	Sub Lever Spring
114	QBN2036A	Record/Playback Arm Spring
115	QBT1868EA	Obstruction Rod Spring
116	QBN2039	Auto-Stop Rod Spring
117	QBN2044A	Auto-Stop Lever Spring
118	QBC1483A	Pause Pin Spring
119	QBS1143	Half Retain Spring
120	QBS1128A	Lock Pin
121	QBN2031	Main Lever Spring
122	QBN2032B	Pause Return Spring
123	QBN2034	Main Control Lever Spring
124	QDB0360	Capstan Belt
125	QDB0359	Fast Forward Belt
127	QXL1689	Main Lever Assembly
128	QML4097	Takeup Lever
129	QDG1333	Takeup Intermediate Gear
130	QMB1434	Cap
131	QML4098A	Fast Forward Lever
132	QDG1335	Fast Forward Gear
133	QML4099A	Rewind Lever
134	QDG1336	Rewind Gear
135	QXD0158A	Takeup Reel Table Assembly
136	QXG1082	Takeup Gear Assembly
137	QXK2902	Sub Chassis Assembly
138	QMS2634	Takeup Axis
139	QDG1339C	Auto-Stop Cam Gear
140	QDP1989A	Intermediation Pulley
141	QML4101	Auto-Stop Detection Lever
142	QML4102	Auto-Stop Driving Lever
143	QML4103	Auto-Stop Change Lever
144	QML4108A	Brake Lever
145	QBN2040	Auto-Stop Release Spring
146	QBN2046	Brake Spring
147	QBC1484	Auto-Stop Pressure Spring
148	QDR1179A	Supply Reel Table
149	QMK2108	Head Base Plate
150	QMF2334	Head Adjustment Plate
151	QMZ1314	Head Spacer
152	QWY4165G	Record/Playback Head
153	QWY2138G	Erase Head
154	QBC1278A	Head Spring
155	QBN2033A	Head Pressure Spring
156	QBT2018DA	Head Return Spring
157	QXF0237	Flywheel Assembly
157-1	QBW2049AF	Poly Washer
157-2	QBW2026F	Washer
158	QML4229	Change Lever
159	QBN2038	Change Lever Spring
160	QXL1694	Pinch Roller Arm Assembly
160-1	QBN2047	Pinch Roller Arm Spring
162	QXU0355	Motor Assembly
163	QMF2335	Flywheel Holding Plate
164	QMZ1313	Thrust Retainer
165	QXL1695	Record/Playback Arm Assembly
166	QBN2045	Record/Playback Spring
170	QBC1500	Lock Rod Spring
171	QXL1697	Eject Button Assembly
172	QXL1698	Record Button Assembly
173	QXL1699	Playback Button Assembly
174	QXL1700	Stop Button Assembly
175	QXL1701	Rewind Button Assembly
176	QXL1702	Fast Forward Button Assembly
177	QXL1703	Pause Button Assembly
178	QMA4753A	Operation Button Angle
179	QMR2148	Obstruction Rod
180	QMR2147C	Lock Rod
181	QMN2869	Operation Lever Shaft
182	QBP2018	Operation Lever Spring
183	QBS1145	Head Pressure Wire
184	QMN2883	Intermediate Gear Axis
185	QBC1502	Erase Head Spring
187	QBC1372	Supply Reel Table Spring
188	QMB1336	Supply Drive Claw
189	QMA4868	Head Base Plate Angle
196	QSB0318	Leaf Switch (S304, Motor ON-OFF)
197	QSB0251IU	Leaf Switch (S305, Muting)
198	QML4171	Switch Lever
199	QML4230	Sensing Lever
	SCREWS, NUTS AND WASHERS	
N 52 Ⓢ	XTN2+6B	Tapping Screw ⊕2×6
N 53 Ⓢ	XTN26+6B	Tapping Screw ⊕2.6×6
N 54 Ⓢ	XTV3+10BFN	Tapping Screw ⊕3×10
N 55 Ⓢ	XTV3+20BFN	Tapping Screw ⊕3×20
N 56	XTV3+37B	Tapping Screw ⊕3×37
N 57	QHQ1361	Screw ⊕2×12
N 58 Ⓢ	XSN26+3	Screw ⊕2.6×3
N 59 Ⓢ	XSN2+3	Screw ⊕2×3
N 60	QBW2046	Poly Washer
N 61	QBW2008	Poly Washer
N 62	XUBQ3FT	Stop Ring 3ϕ
N 63 Ⓢ	XTN3+10B	Tapping Screw ⊕3×10
N 64 Ⓢ	XWG3	Washer 3ϕ
N 65	XTB2+5J	Tapping Screw, ⊕2×5

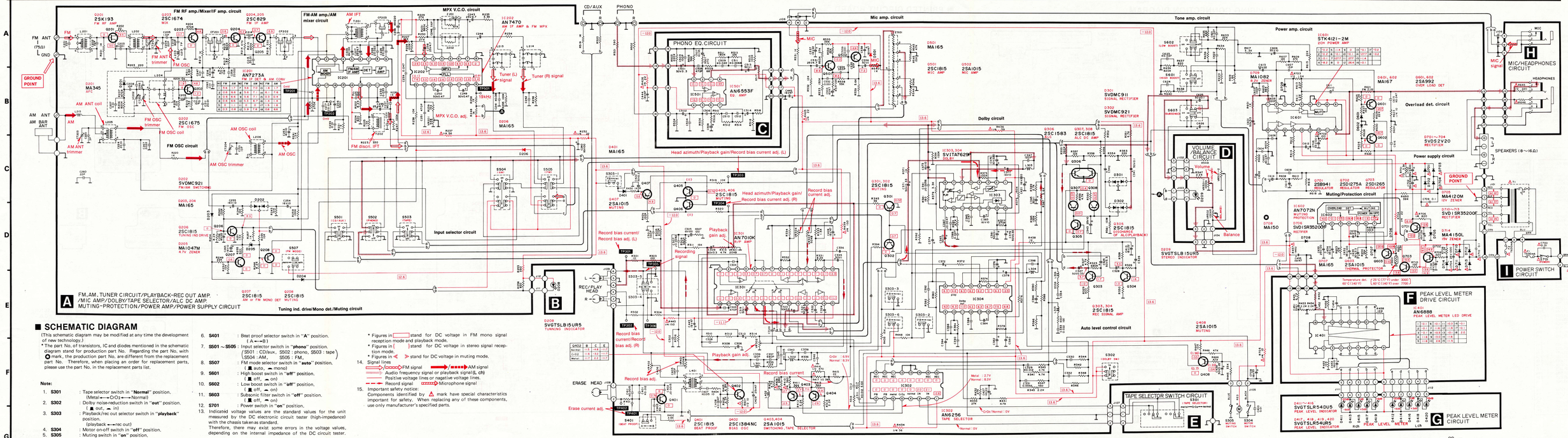
■ BLOCK DIAGRAM

- **Tuner/Phono equalizer/Input selector circuit**



- **Cassette deck/Power amp./Overload det./Peak level meter/Power supply circuit**





■ SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time the development of new technology.)

* The part No. of transistors, IC and diodes mentioned in the schematic diagram stand for production part No. Regarding the part No. with ✪ mark, the production part No. are different from the replacement part No. Therefore, when placing an order for replacement parts, please use the part No. in the replacement parts list.

Note:

1. **S301** : Tape selector switch in "**Normal**" position. (Metal←→CrO₂←→Normal)
2. **S302** : Dolby noise-reduction switch in "**out**" position. (■ out, ➡ in)
3. **S303** : Playback/rec out selector switch in "**playback**" position. (playback ←→rec out)
4. **S304** : Motor on-off switch in "**off**" position.
5. **S305** : Muting switch in "**on**" position.
6. **S401** : Beat proof selector switch in "**A**" position. (A←→B)
7. **S501～S505** : Input selector switch in "**phono**" position. (S501 : CD/aux, S502 : phono, S503 : tape, S504 : AM, S505 : FM.)
8. **S507** : FM mode selector switch in "**auto**" position. (■ auto, ➡ mono)
9. **S601** : High boost switch in "**off**" position. (■ off, ➡ on)
10. **S602** : Low boost switch in "**off**" position. (■ off, ➡ on)
11. **S603** : Subsonic filter switch in "**off**" position. (■ off, ➡ on)
12. **S701** : Power switch in "**on**" position.
13. Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

* Figures in ▭ stand for DC voltage in FM mono signal reception mode and playback mode.
* Figures in ( ) stand for DC voltage in stereo signal reception mode.
* Figures in ＜ ＞ stand for DC voltage in muting mode.

14. Signal lines
FM signal ▭▭▭ AM signal
Audio frequency signal or playback signal (L ch)
Positive voltage lines or nagative voltage lines.
Record signal
Microphone signal

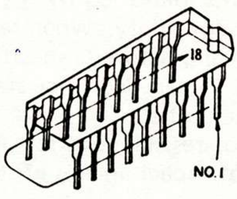
15. Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

Q402	B	C	E
NORM	0	0.6	0
VOL	0.7	2.2	0.7

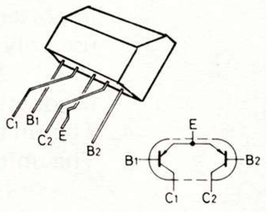
IC501	1	2	3	4	5	6	7	8
NORM	0	0	0	0	0	0	0	0
VOL	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

■ TERMINAL GUIDE OF TRANSISTORS , DIODES AND IC'S

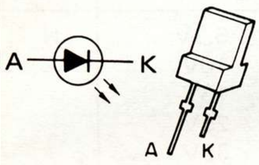
AN7470	16 pin
SVITA7629P	
AN6256	
AN6553F	8 pin
AN7010K	28 pin
AN6888	18 pin
AN7273B	



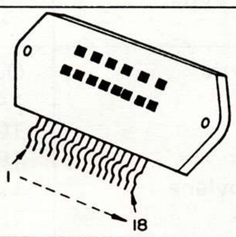
2SC1583



SVGTSLB15UR5



STK4121-2M



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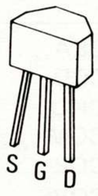
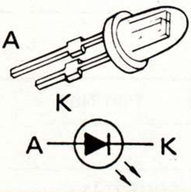
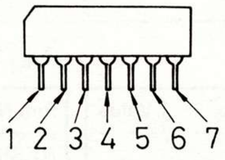


SVGTSLR54DU5,
SVGTSLR54UR5



AN7072



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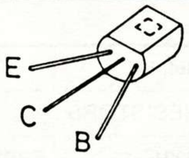
2SC1384, 2SC1674
2SC1815, 2SC1675
2SA992



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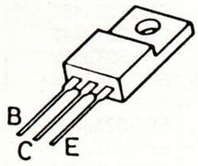

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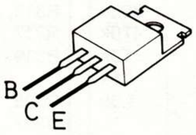
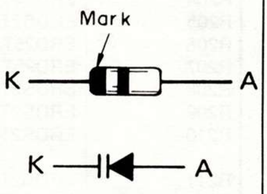
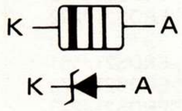


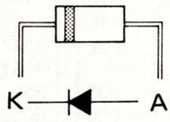
MA345



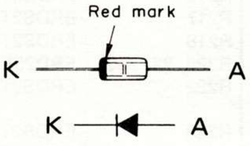
MA4120M, MA4150L



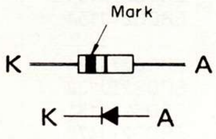
SVDS2V20
SVDISR35200F



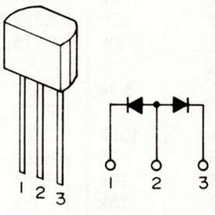
MA165, MA150



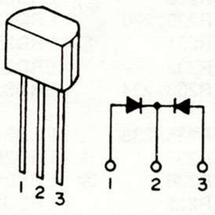
MA167



SVDMC911



SVDMC921



■ RESISTORS AND CAPACITORS

Notes:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. The " Ⓢ " mark is service standard parts and may differ from production parts.
4. The unit of resistance is Ω (ohm), K = 1000Ω, M = 1000kΩ.
5. The unit of capacitance is μF (microfarad). P = 10^{-6}μF

Resistor Type	Wattage	Tolerance
ERD : Carbon	2F : 1/4W	G : ± 2%
ERG : Metal Oxide	S2 : 1/4W	J : ± 5%
ERC : Solid	25 : 1/4W	
ERX : Metal Film	14 : 1/4W	
	S1 : 1/2W	
	1 : 1W	
	2 : 2W	

Capacitor Type	Voltage		Tolerance
	ECEA Type	Other	
ECEA : Electrolytic	OJ : 6.3V	1H : 50V DC	C : ± 0.25pF
ECCD : Ceramic	1A : 10V	KC : 400V AC	J : ± 5%
ECKD : Ceramic	1C : 16V		K : ± 10%
ECQM : Polyester	1E : 25V		Z : +80%, −20%
ECQP : Polypropylene	1V : 35V		P : +100%, −0%
ECQB : Polyester	1H : 50V		
ECFD : Semiconduction Ass'y	1 : 125V		
	50 : 50V		

Ref. No.	Part No.	Value
RESISTORS		
R201	ERDS2TJ102	1k
R202	ERDS2TJ220	22
R203	ERDS2TJ221	220
R204	ERDS2TJ474	470k
R205	ERDS2TJ274	270k
R206 Ⓢ	ERD25TJ824	820k
R207 Ⓢ	ERD25TJ474	470k
R208	ERDS2TJ103	10k
R209	ERDS2TJ153	15k
R210	ERDS2TJ152	1.5k
R211	ERDS2TJ562	5.6k
R212	ERDS2TJ102	1k
R213	ERDS2TJ824	820k
R214	ERDS2TJ471	470
R215	ERDS2TJ824	820k
R216	ERDS2TJ331	330
R217	ERDS2TJ182	1.8k
R218	ERDS2TJ471	470
R220, 221 Ⓢ	ERD25FJ102	1k
R222	ERDS2TJ822	8.2k
R223	ERDS2TJ331	330
R224	ERDS2TJ821	820
R225	ERDS2TJ152	1.5k
R226 Ⓢ	ERD25FJ102	1k
R227 Ⓢ	ERD25FJ103	10k
R228	ERDS2TJ104	100k
R229, 230	ERDS2TJ273	27k
R231 Ⓢ	ERD25TJ564	560k
R232	ERD2FCG220	22
R233, 234	ERDS2TJ332	3.3k
R235, 236	ERDS2TJ104	100k
R237 ⚠	ERD2FCG560	56
R238 Ⓢ	ERD25FJ103	10k
R239	ERDS2TJ153	15k
R240 Ⓢ	ERD25TJ124	120k
R241	ERDS2TJ122	1.2k
R243, 244	ERDS2TJ103	10k
R245	ERDS2TJ103	10k
R246	ERDS2TJ822	8.2k
R247 Ⓢ	ERD25TJ104	100k
R248	ERDS2TJ102	1k
R249	ERDS2TJ223	22k
R250	ERDS2TJ103	10k
R251	ERDS2TJ152	1.5k
R253	ERDS2TJ391	390
R254	ERDS2TJ822	8.2k
R255, 256	ERDS2TJ821	820
R257	ERDS2TJ102	1k
R258 Ⓢ	ERD25FJ102	1k
R259	ERDS2TJ104	100k
R301, 302 Ⓢ	ERD25FJ100	10

Ref. No.	Part No.	Value
RESISTORS		
R303, 304	ERDS2TJ101	100
R305, 306	ERDS2TJ274	270k
R307, 308	ERDS2TJ121	120
R309, 310	ERDS2TJ394	390k
R311, 312	ERDS2TJ153	15k
R313, 314	ERDS2TJ472	4.7k
R317, 318	ERDS2TJ562	5.6k
R319, 320 Ⓢ	ERD25FJ103	10k
R325, 326	ERDS2TJ684	680k
R327, 328	ERDS2TJ472	4.7k
R329, 330	ERDS2TJ821	820
R331, 332	ERDS2TJ822	8.2k
R333, 334	ERDS2TJ152	1.5k
R335, 336	ERDS2TJ123	12k
R337, 338	ERDS2TJ101	100
R341, 342	ERDS2TJ472	4.7k
R343, 344	ERDS2TJ472	4.7k
R345, 346	ERDS2TJ222	2.2k
R347, 348	ERDS2TJ561	560
R351, 352	ERDS2TJ472	4.7k
R353, 354	ERDS2TJ223	22k
R355, 356 Ⓢ	ERD25TJ394	390k
R357, 358	ERDS2TJ103	10k
R359, 360	ERDS2TJ472	4.7k
R361	ERC14GJ106	10M
R371, 372	ERDS2TJ102	1k
R373, 374	ERDS2TJ104	100k
R375, 376	ERDS2TJ154	150k
R377, 378	ERDS2TJ274	270k
R379, 380	ERDS2TJ332	3.3k
R381, 382	ERDS2TJ181	180
R383, 384	ERDS2TJ473	47k
R385, 386	ERDS2TJ104	100k
R387, 388	ERDS2TJ562	5.6k
R389, 390	ERDS2TJ272	2.7k
R391, 392	ERDS2TJ104	100k
R393	ERD25FJ390	39
R394	ERDS2TJ390	39
R401 Ⓢ	ERD25FJ1R0	1
R402	ERDS2TJ392	3.9k
R404	ERDS2TJ100	10
R405	ERDS2TJ682	6.8k
R406	ERDS2TJ272	2.7k
R407 ⚠	ERDS1FJ100	10
R408	ERDS2TJ472	4.7k
R409 ⚠Ⓢ	ERD25FJ681	680
R410 ⚠Ⓢ	ERD25FJ561	560
R411	ERDS2TJ563	56k
R412	ERDS2TJ222	2.2k
R413	ERDS2TJ563	56k
R414	ERDS2TJ222	2.2k
R415 Ⓢ	ERD25FJ220	22

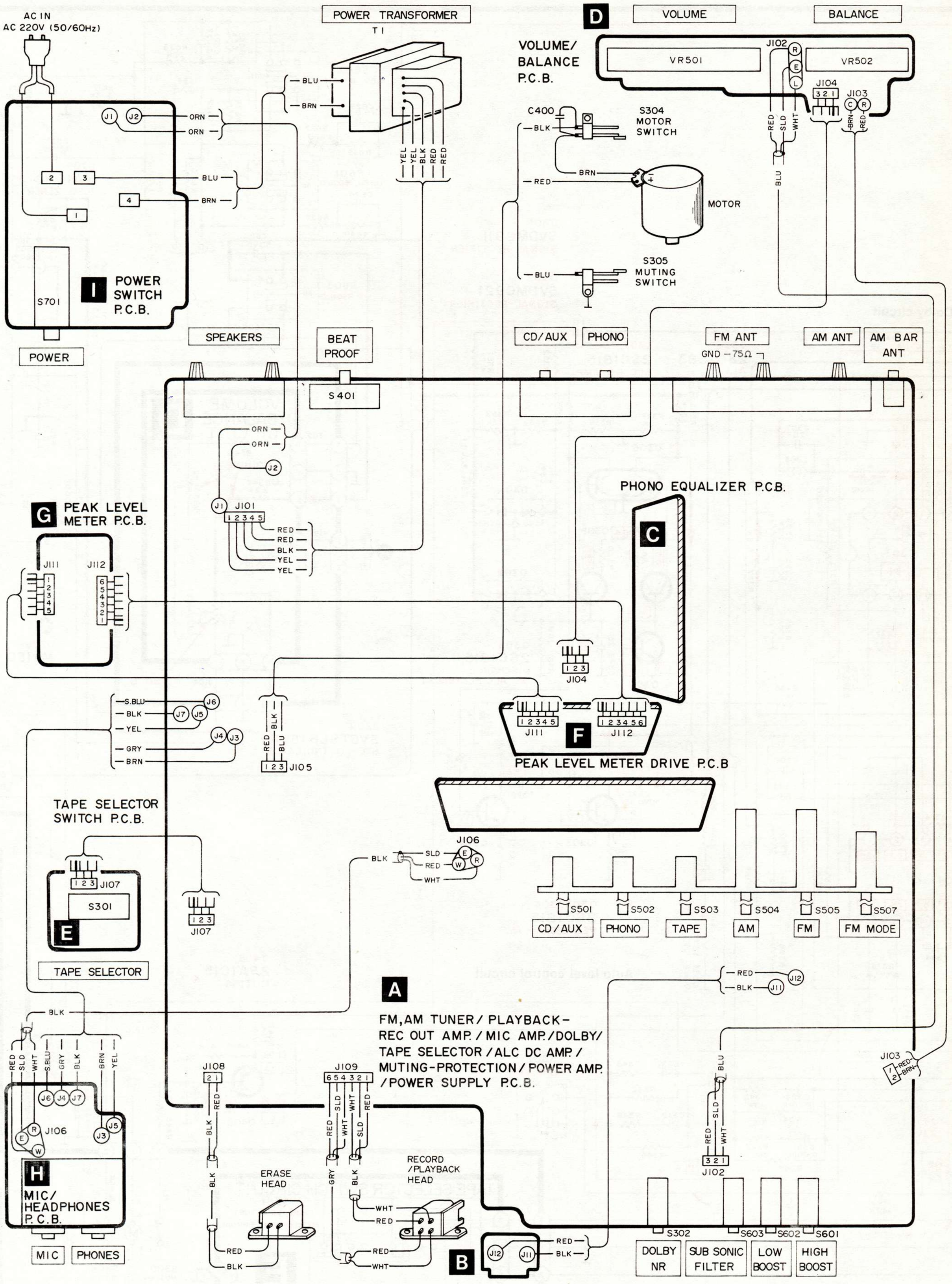
Ref. No.	Part No.	Value
RESISTORS		
R416 ⚠	ERDS1FJ471	470
R417 ⚠	ERDS1FJ391	390
R425, 426 ⚠	ERD2FCG220	22
R429	ERDS2TJ104	100k
R430	ERDS2TJ102	1k
R431	ERDS2TJ472	4.7k
R432, 433	ERDS2TJ273	27k
R434 ⚠	ERD2FCG560	56
R435	ERDS2TJ153	15k
R436 ⚠	ERD2FCG390	39
R438 Ⓢ	ERD25FJ102	1k
R439 ⚠Ⓢ	ERD25FJ151	150
R443 ⚠Ⓢ	ERD25FJ151	150
R444	ERDS2TJ473	47k
R445	ERDS2TJ333	33k
R446	ERDS2TJ473	47k
R447, 448	ERDS2TJ103	10k
R451, 452	ERDS2TJ472	4.7k
R453, 454	ERDS2TJ222	2.2k
R455, 456	ERDS2TJ103	10k
R457 Ⓢ	ERG1ANJ820	82
R458	ERDS2TJ103	10k
R501, 502	ERDS2TJ391	390
R503, 504	ERDS2TJ224	220k
R505, 506	ERDS2TJ563	56k
R507, 508	ERDS2TJ271	270
R509, 510	ERDS2TJ680	68
R511, 512	ERDS2TJ184	180k
R513, 514	ERDS2TJ123	12k
R515, 516	ERDS2TJ104	100k
R517, 518	ERDS2TJ102	1k
R519, 520	ERDS2TJ102	1k
R531	ERDS2TJ102	1k
R532	ERDS2TJ123	12k
R533	ERDS2TJ154	150k
R534	ERDS2TJ273	27k
R535	ERDS2TJ393	39k
R536	ERDS2TJ223	22k
R537	ERDS2TJ221	220
R538	ERDS2TJ333	33k
R539	ERDS2TJ562	5.6k
R540	ERDS2TJ102	1k
R543, 544	ERDS2TJ473	47k
R545, 546	ERDS2TJ153	15k
R547, 548	ERDS2TJ222	2.2k
R601, 602	ERDS2TJ102	1k
R603, 604	ERDS2TJ563	56k
R607, 608	ERDS2TJ123	12k
R609, 610	ERDS2TJ473	47k
R611, 612 Ⓢ	ERD25FJ222	2.2k
R613, 614	ERDS2TJ222	2.2k
R615, 616	ERDS2TJ223	22k

Ref. No.	Part No.	Value
RESISTORS		
R617, 618	ERDS2TJ332	3.3k
R619, 620	ERDS2TJ182	1.8k
R621, 622 Ⓢ	ERX2ANJR22	0.22
R623, 624 ⚠	ERD2FCG100	10
R625, 626 Ⓢ	ERD25FJ222	2.2k
R627, 628	ERDS2TJ153	15k
R629, 630	ERDS2TJ223	22k
R633, 634	ERDS2TJ223	22k
R635, 636	ERDS2TJ683	68k
R637, 638	ERDS2TJ821	820
R639, 640	ERDS2TJ824	820k
R645, 646 ⚠	ERDS1FJ221	220
R650	ERDS2TJ393	39k
R651 Ⓢ	ERD25TJ333	33k
R652	ERDS2TJ104	100k
R653	ERDS2TJ103	10k
R654	ERDS2TJ393	39K
R701 ⚠	ERDS1FJ332	3.3k
R702 ⚠	ERD2FCG101	100
R703 ⚠	ERDS1FJ152	1.5k
R704 ⚠	ERD2FCG220	22
R705 ⚠	ERD2FCG100	10
R706 ⚠Ⓢ	ERD25FJ821	820
R708	ERDS2TJ222	2.2k
R709	ERDS2TJ221	220
R710	ERDS2TJ101	100

Ref. No.	Part No.	Value
CAPACITORS		
C201, 202 Ⓢ	ECCD1H220K	22p
C203 Ⓢ	ECKD1H102ZF	0.001
C204 Ⓢ	ECCD1H220K	22p
C205 Ⓢ	ECCD1H1R5C	1.5p
C206	ECEA1HU010	1
C207 Ⓢ	ECKD1H103ZF	0.01
C208 Ⓢ	ECCD1H100KC	10p
C209 Ⓢ	ECCD1H220KC	22p
C210 Ⓢ	ECCD1H100KC	10p
C211 Ⓢ	ECKD1H103ZF	0.01
C212 Ⓢ	ECKD1H181KB	180p
C213 Ⓢ	ECCD1H070CC	7p
C214 Ⓢ	ECKD1H101KB	100p
C215 Ⓢ	ECKD1H103ZF	0.01
C216	ECEA1CU100	10
C217 Ⓢ	ECKD1H103ZF	0.01
C220 Ⓢ	ECCD1H030CC	3p
C221 Ⓢ	ECCD1H100KC	100p
C224 Ⓢ	ECKD1H103ZF	0.01
C226	ECEA0JU101	100
C227	ECEA1EU4R7	4.7
C228, 229 Ⓢ	ECKD1H223ZF	0.022
C230	ECFD1V333KD	0.033
C231 Ⓢ	ECKD1H101KB	100p
C232 Ⓢ	ECKD1H223ZF	0.022
C233 Ⓢ	ECKD1H103ZF	0.01
C235	ECEA1EU4R7	4.7
C236	ECEA1CU221	220
C237	ECFD1V473KD	0.047
C238	ECEA1EU4R7	4.7
C239	ECFD1V473KD	0.047
C240	ECEA1CU101	100
C241, 242	ECFD1V183KD	0.018
C243, 244	ECEA1EU4R7	4.7
C246 Ⓢ	ECCD1H560K	56p
C247 Ⓢ	ECKD1H103ZF	0.01
C249, 250	ECEA1HUR47	0.47
C251	ECQP1471JZ	470p
C253, 254	ECEA1CU100	10
C255	ECEA1CU100	10
C256	ECEA1CU220	22
C260 Ⓢ	ECCD1H220KC	22p
C263 Ⓢ	ECKD1H103ZF	0.01
C265	ECEA1CU100	10
C266 Ⓢ	ECCD1H040CC	4p
C267 Ⓢ	ECKD1H223ZF	0.022
C301, 302 Ⓢ	ECKD1H561KB	560p
C303, 304 Ⓢ	ECKD1H471KB	470p
C305, 306	ECEA0JU101	100
C307, 308	ECQB1H822JZ	0.0082
C309, 310	ECEA1HU3R3	3.3
C311, 312	ECFD1V123KD	0.012
C319, 320	ECEA1HU010	1
C321, 322	ECEA1HU3R3	3.3
C323, 324	ECEA1HU3R3	3.3
C325, 326	ECEA1HU3R3	3.3
C327, 328	ECEA1HUR33	0.33
C329, 330 Ⓢ	ECQM1H123JZ	0.012
C331, 332 Ⓢ	ECQM1H562JZ	0.0056
C333, 334 Ⓢ	ECQM1H223JZ	0.022
C335, 336	ECEA1HU010	1
C337, 338 Ⓢ	ECKD1H681KB	680p
C339, 340 Ⓢ	ECKD1H121KB	120p
C341, 342	ECEA1HU0R1	0.1
C343	ECEA1EU100	10
C345, 346	ECFD1H152KD	0.0015
C371, 372 Ⓢ	ECEA50MR33R	0.33
C373, 374	ECEA1CU100	10
C375, 376	ECEA1AU221	220
C377, 378	ECEA1CU100	10
C379, 380 Ⓢ	ECEA50MR33R	0.33
C381, 382	ECEA50ZR1	0.1

Ref. No.	Part No.	Value
CAPACITORS		
C383, 384	ECEA1CU100	10
C385, 386 Ⓢ	ECQM1H473JZ	0.047
C387, 388	ECQB1H472JZ	0.0047
C389, 390	ECQB1H273JZ	0.027
C391, 392	ECQB1H562JZ	0.0056
C393, 394	ECEA1CU100	10
C395, 396	ECEA1HU010	1
C397, 398 Ⓢ	ECKD1H121KB	120p
C400 Ⓢ	ECKD1H103ZF	0.01
C401 Ⓢ	ECQM1H123JZ	0.012
C402	ECQB1H152JZ	0.0015
C403 Ⓢ	ECQM1H104JZ	0.1
C405, 406 Ⓢ	ECKD1H101KB	100p
C407 Ⓢ	ECQM1H153JZ	0.015
C408 Ⓢ	ECQM1H472JZ	0.0047
C409	ECEA1EU470	47
C410	ECEA1CU100	10
C411 Ⓢ	ECQM1H152JZ	0.0015
C421	ECEA1CU221	220
C422	ECEA1HU2R2	2.2
C427	ECEA1CU220	22
C428	ECEA1CU470	47
C429	ECEA1HUR22	0.22
C443, 444	ECEA1CU470	47
C445	ECEA1CU470	47
C451, 452	ECEA1HU010	1
C453, 454	ECEA1CU100	10
C455	ECEA1CU470	47
C501, 502	ECEA1HU3R3	3.3
C503, 504 Ⓢ	ECKD1H101KB	100p
C505, 506 Ⓢ	ECKD1H471KB	470p
C507, 508	ECEA0JU330	33
C509, 510	ECFD1V223KD	0.022
C511, 512	ECFD1H682KD	0.0068
C513, 514	ECEA1HU010	1
C531	ECEA1EU4R7	4.7
C532 Ⓢ	ECKD1H102ZF	0.001
C533	ECEA1CU470	47
C534 Ⓢ	ECKD1H561KB	560p
C535 Ⓢ	ECCD1H470K	47p
C536	ECEA1HU010	1
C537	ECEA1CU220	22
C538	ECEA1CU470	47
C539 Ⓢ	ECKD1H102ZF	0.001
C601, 602	ECEA1HU3R3	3.3
C603, 604 Ⓢ	ECKD1H101KB	100p
C605, 606 Ⓢ	ECKD1H221KB	220p
C607, 608 Ⓢ	ECCD1H150KC	15p
C609, 610	ECEA1VU100	10
C611, 612	ECEA1VU100	10
C613, 614	ECEA1VU220	22
C615, 616	ECFD1V473KD	0.047
C621, 622	ECFD1V273KD	0.027
C623, 624	ECFD1V273KD	0.027
C625, 626	ECEA1HU0R1	0.1
C632	ECEA1VU101	100
C633	ECEA1HU3R3	3.3
C634	ECEA1VU100	10
C635	ECEA1EU101	100
C636	ECEA1HU3R3	3.3
C660 Ⓢ	ECQM1H473JZ	0.047
C700 ⚠	ECKDKC103PF	0.01
C701, 702 ⚠	ECEA1VU332	3300
C703	ECEA1CU101	100
C704 ⚠	ECEA1EU102	1000
C705	ECEA1VU101	100
C706	ECEA1CU221	220
C708	ECEA1CU330	33
C709 ⚠	ECQE1104KN	0.1
C710 ⚠Ⓢ	ECQM1H104JZ	0.1

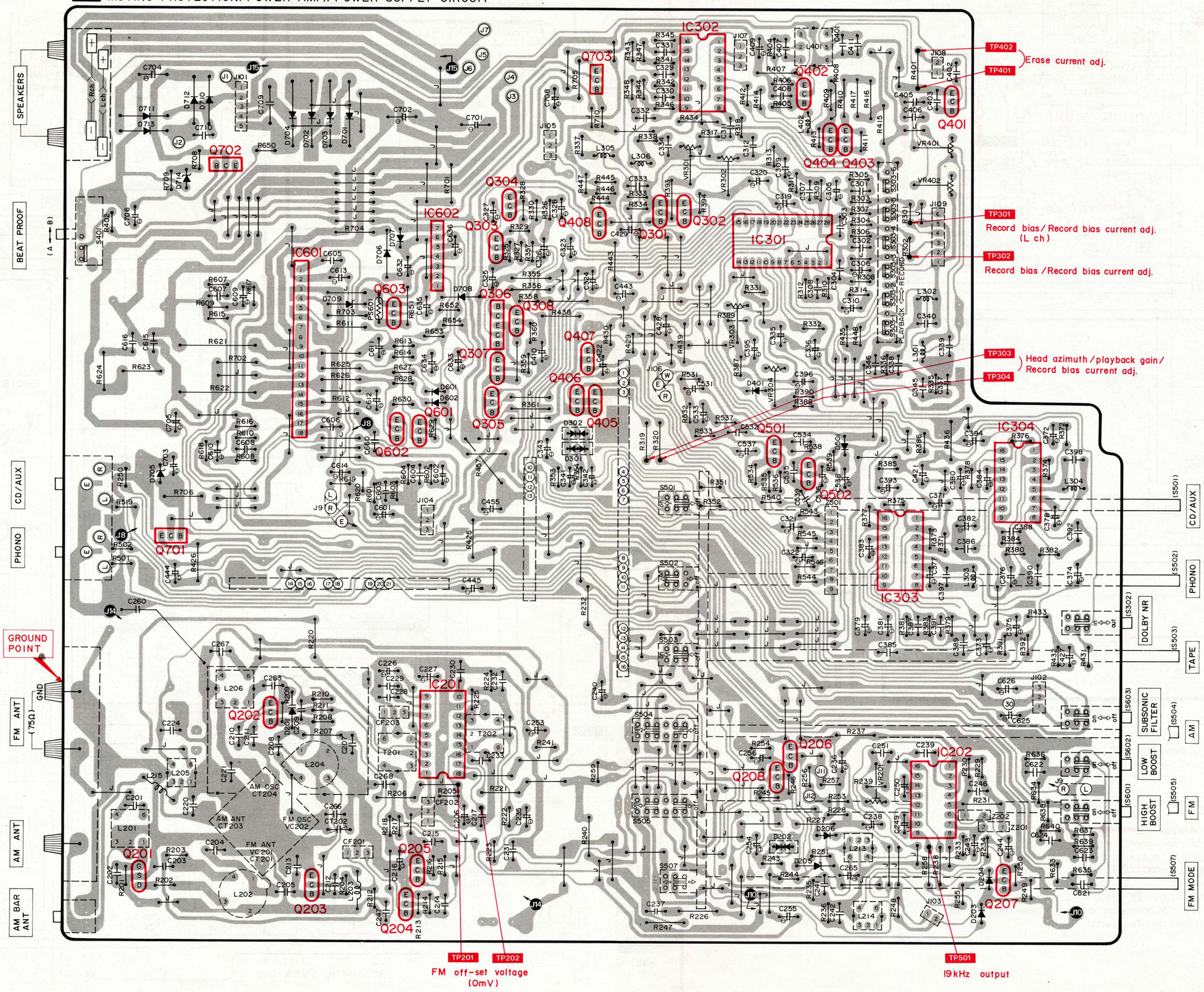
■ WIRING CONNECTION DIAGRAM

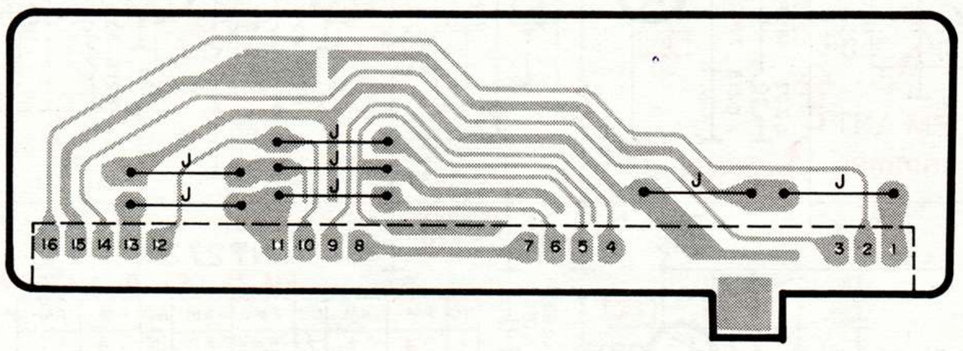


SA-K2

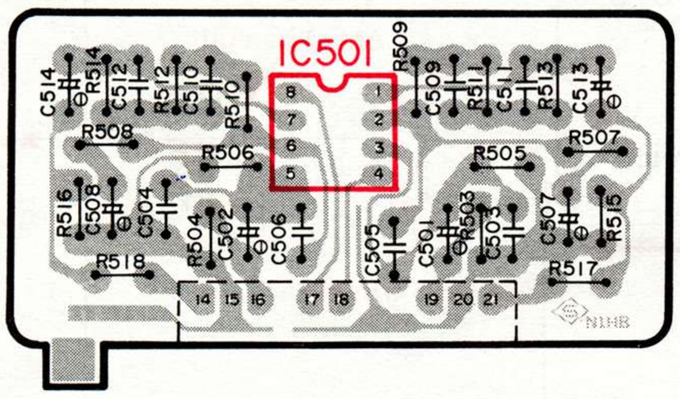
■ PRINTED CIRCUIT BOARD

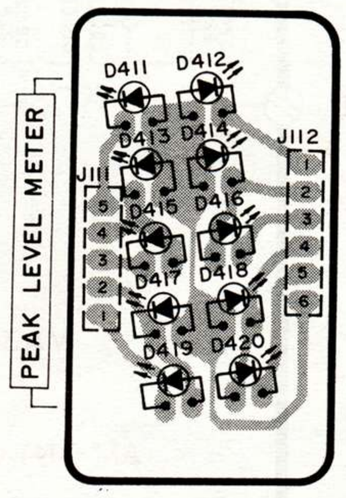
A FM/AM TUNER CIRCUIT/PLAYBACK-REC OUT AMP./MIC AMP./DOLBY/TAPE SELECTOR/ALC DC AMP.
MUTING-PROTECTION/POWER AMP./POWER SUPPLY CIRCUIT



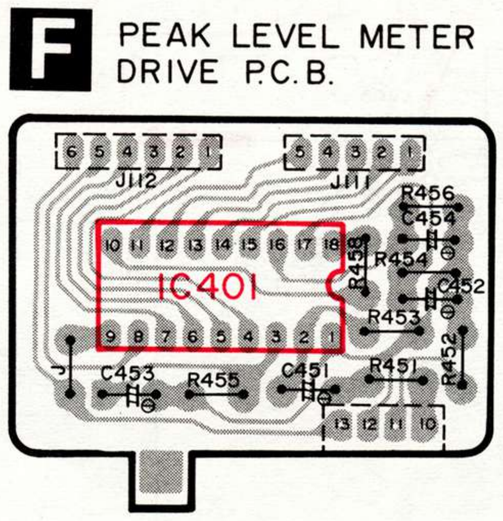


C PHONO EQUALIZER P.C.B.

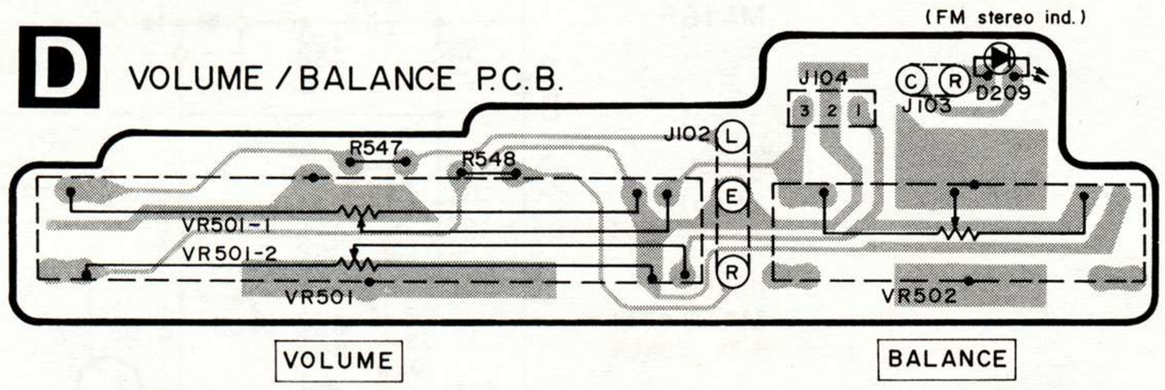




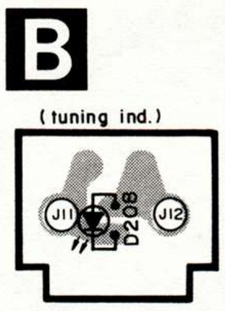
G PEAK LEVEL METER P.C.B.



F PEAK LEVEL METER DRIVE P.C.B.



D VOLUME / BALANCE P.C.B.



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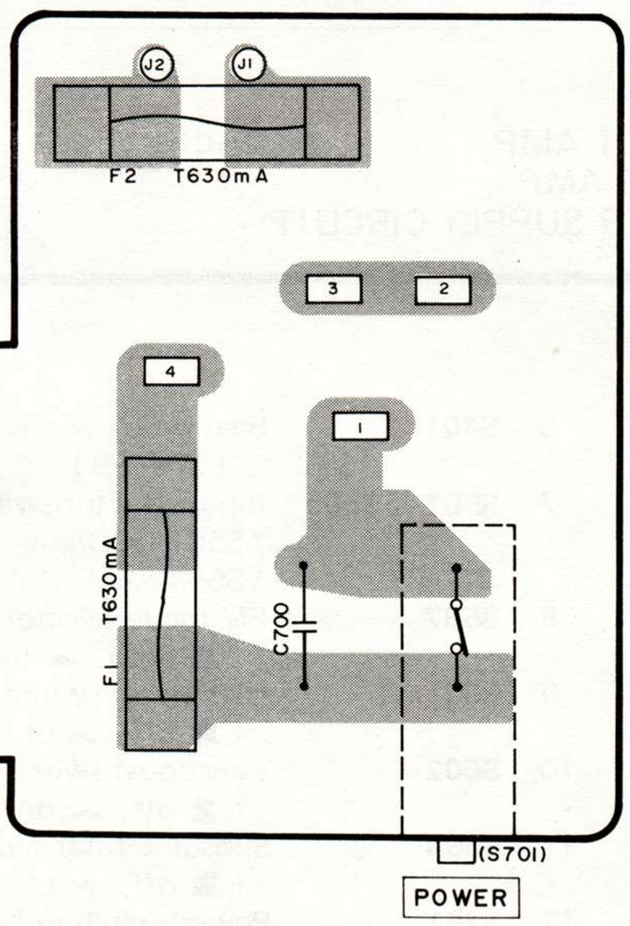
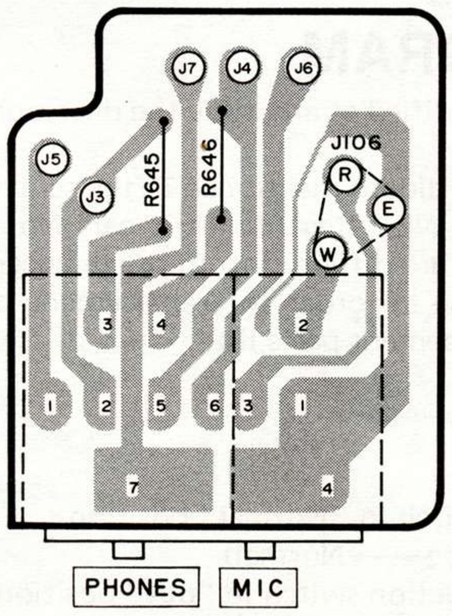
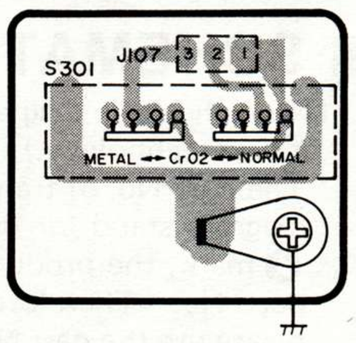


I POWER SWITCH P.C.B.



H MIC / HEADPHONES P.C.B.

TAPE SELECTOR



E TAPE SELECTOR SWITCH P.C.B.

Printed in Japan
841202350 Ⓗ SH/TN
850601100 Ⓗ